

**A Long History of a Short Block:
Four Centuries of Development Surprises on a Single Stretch of a New York
City Street¹**

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Development economists usually (and understandably) evaluate effectiveness of intentional efforts to achieve economic development. There are few opportunities empirically to appreciate the unintended and surprising part of development outcomes portrayed by theories of creative destruction and other theories of spontaneous general equilibrium outcomes not intended by anyone. This paper does a development case study at an extreme micro level (one city block in New York City), but over a long period of time (four centuries). We find that (i) development involves many changes in production as comparative advantage evolves and (ii) most of these changes were unexpected (“surprises”). The block’s history illustrates how difficult it is for overly prescriptive planners to anticipate changes in comparative advantage and how such planning could instead stifle creative destruction.

I. Introduction

It is widely accepted that at least some important part of development outcomes are the spontaneous result of a general equilibrium process, such as “creative destruction,” in which no single agent consciously intended the final outcome. Kenneth Arrow suggested in a classic quote that “the notion that through the workings of an entire system effects may be very different from, and even opposed to, intentions is surely the most important intellectual contribution that economic thought has made to the general understanding of social processes.”

Yet there are few opportunities empirically to appreciate the unintended surprises that are part of development histories. Research in economic development understandably focuses mostly on whether intentional efforts to improve development outcomes are successful. Even historical case studies of economic development usually emphasize stories of nations in which most of the focus is on intentional policies by national leaders to achieve national development.

Seeking a way to appreciate spontaneous general equilibrium outcomes in development, we undertake a drastic alternative: a case study of nearly 400 years of history of a single city block in New York City. The block we study is 486 feet of a north-south street called Greene Street between Houston and Prince Streets.² Today it is part of the luxury residential and retail neighborhood called SoHo in downtown Manhattan (Figure 1). With a small unit like our block, we can see change initiated at the level of individual households or firms that in turn make up sectors of economic activity. We see a pattern of rapid change: new sectors replaced old ones while new households or businesses replaced their predecessors. Most importantly, the changes were usually surprises (we list six surprises in total). For example, from 1850 to 1890 the block suddenly went from a high-end residential neighborhood to New York’s largest concentration of brothels, only to change just as suddenly to be part of the epicenter of New York (and US) garment manufacturing. The surprises are not evenly spaced – there was about a century and a half between the first and second surprise, after which they came much faster.

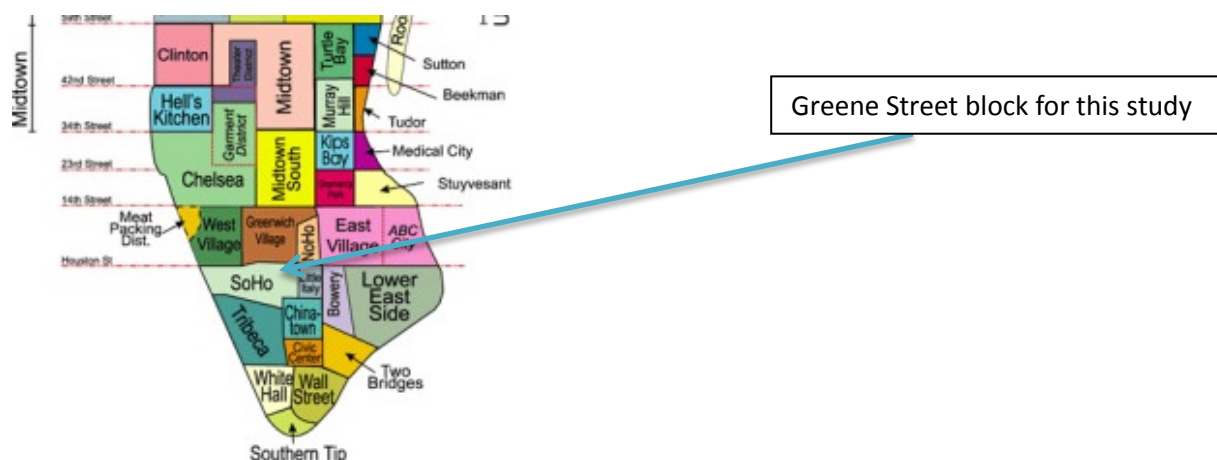


Figure 1: location of the block we study relative to Manhattan neighborhoods today

The small unit of analysis allows us to illustrate why surprises were prevalent. The shocks that affect the block can vary from what is happening two blocks over to what is happening on the other side of the world, interacting with trends that affect the world or the US or New York City, or other trends that are specific to the neighborhood. Moreover, these shocks interact with initial conditions on the block.

a. Relationship to academic literature

A long development literature emphasizes Total Factor Productivity (TFP) growth driven by creative destruction (e.g. Aghion and Howitt 1992). We can observe creative destruction most dramatically at the level of small units that can show sudden ups and downs.

A more recent literature has also emphasized misallocation of inputs across heterogeneous units with different TFPs, leading to lower overall TFP (Restuccia and Rogerson 2013). Examples of heterogeneous units are farms (Adamopoulos and Restuccia 2014), manufacturing plants, Hsieh and Klenow (2014), and cities (Hsieh and Moretti 2015). We suggest in this case study that the search for losses from misallocation could include even misallocation across such small geographic units as city blocks.

One response to micro-level inefficiencies is that there needs to be more development planning to move scarce factors of production from “obsolete” inefficient units to more productive “modern” units. National case studies such as those by Wade (1990) and Rodrik (1995, 2001) on the East Asian tigers and Rodrik (2006) on China describe some success by national leaders at “picking winners.”

A case study of a block forces us to consider the role of leaderless, spontaneous forces prone to surprises, making it harder to pick winners. Previous literature (e.g. Benabou 1993) has also portrayed a city as a complex general equilibrium in which policy and individual decisions interact to produce unanticipated outcomes.

Our case study of one block corrects some biases understating the chaos of creative destruction, but it may create new biases. The difficulty of attribution of what was happening on the block to city-wide or nation-wide policies may understate the public planning that boosted the block. This case study can best be seen as a reminder that development does not have to be at one extreme or the other, all planned or all spontaneous. Our block’s chaotic development path occurred within a framework of some flexible public planning: street layout, water supply, sewers, fighting crime and fires, public schools, and other public services.

A longstanding debate in planning contrasts flexible planning of public services and institutions with more prescriptive planning that aims at specific neighborhood or sectoral outcomes (we will cover an example of this in the block’s history).

This study obviously overlaps with a rich urban economics literature, even though our original intention was to do a different kind of case study of economic development. One very relevant literature on urban policy to address poverty contrasts the efficiency losses associated with place-based subsidies to less distortionary person-based subsidies (Kline and Moretti 2014). Glaeser (2011, Kindle Location 4326-4327) provides a strong statement of case against place-based policy: “The national government does no good by favoring particular places, just as it does no good by propping up particular firms or industries. It’s far better for companies to compete, and it’s also far better for cities to find their own competitive advantages.”

b. Design of the case study

We selected the block out of convenience because it was close to NYU, and because it had abundant historical documentation. A possible selection bias was that we knew that the block is a “success story” today. Selecting on success is not so different from the prevalence in national case studies of analyzing

“success stories” like China or the East Asian tigers. Moreover, the larger aggregates to which the block belongs – New York City and the United States – are also “success stories” and so the block helps visualize some of the micro successes behind these much larger aggregate successes. Still, we acknowledge that, like “success stories” of nations, a case study of only one block’s success is mostly of use to illustrate how development success happens; it does not constitute rigorous evidence for detailed policy prescriptions.

In the first two centuries after the Dutch founding of New Amsterdam in 1625, maps and histories allow us to track the few individuals operating on our block. Beginning in 1834, maps, city directories, censuses, tax records, and factory inspection reports allowed a recording about every 5 years of almost everyone who was on the block, their economic activity, and real estate values.³ The data is subject to some errors and omissions, but the numbers enabled description and analysis of what was happening on the block.

We base our links from shocks to changes on the block on the many specialized histories available (for example, Gilfoyle (1994) and Sanger (1859) on prostitution in New York) and some contemporary press accounts (all sources are detailed in the endnotes and bibliography). It is the nature of a case study, however, that we cannot rigorously prove causal links from shocks to changes. Some of the determinants of change were themselves endogenous (transportation infrastructure, for example), and we are describing outcomes that are part of a larger general equilibrium.

The rest of the paper proceeds organized into sections corresponding to major changes in comparative advantage of the block, describing each of the shocks that contributed to changes – we call them “surprises” when the shocks and changes were generally unanticipated.

II. The agricultural period

Before the Dutch founded New Amsterdam in 1625, the block lay in a forest just north of some wetlands on Manhattan.⁴ There is little knowledge about the Lenape people (later known as Delawares) who occupied the greater New York region before Europeans arrived.

The earliest records for the block date from the 1640s, when Manhattan was the Dutch colony New Amsterdam. The Dutch had brought slaves from Africa to New Amsterdam as early as 1626.⁵ The Dutch governor Willem Kieft gave parcels on our block and surrounding area to four slaves, Marycke (widow of Lawrence, December 2, 1643), Anthony Portuguese (before 1644), Gratia D’Angola (December 15, 1644), and Pieter Van Campen (April 6, 1647).⁶ The borders of the four parcels straddled our block. These slaves then became “half-free” – meaning that they were free, but their children would remain slaves.

The gift was not quite as magnanimous as it appears, as Kieft had provoked a war with the Indians that lasted from February 1643 to August 1645. The slaves formed a buffer against Indian attacks.⁷ They produced food for the city by paying a tax of grain and livestock. Giving this land to slaves also reflected the low value of the land at the time, which reflected the low population of the city (only 450 people in 1644).

The gift of land to slaves also reflected the low expectations the Dutch had for New Amsterdam. During the treaty negotiations with the British after the war that resulted in permanent transfer of the colony, the Dutch at one point addressed the question of whether to retain Suriname or New Amsterdam, and chose the more promising sugar-producing slave plantations of Suriname.⁸

Surprise 1: Dutch expect New York to be less valuable than Suriname.

The Dutch did not anticipate the extent to which New York would later prosper through triangular trade with Caribbean sugar plantations and Britain. As one historian put it, “New York now lived by feeding the slaves who made the sugar that fed the workers who made the clothes and other finished wares that New Yorkers didn’t make for themselves.”⁹ This trade meant the value of the farmland on Greene Street increased and the British would not allow slaves to continue ownership. The combination of high transport costs on land and low transport costs at sea made farmland adjacent to ports especially valuable. After Dutch New Amsterdam became British New York in 1664, increasingly repressive British laws against slaves and blacks made it impossible for the ownership of Greene Street by “half-free” slaves to continue.¹⁰

Figure 2: Lower Manhattan in 1767 Ratzel Map¹¹



Nicholas Bayard (1644-1707) acquired enough land by 1700 to assemble a large farm, which went from the northern edge of what is now Chinatown to the southern part of Greenwich Village.¹² Bayard was a nephew of the last Dutch governor of New Amsterdam, Peter Stuyvesant, whom he served as private secretary.¹³ After the British takeover, Bayard served as both mayor and alderman of New York. The Bayard family passed the farm to descendants for several generations, reflecting a slower pace of change for the block compared to what would happen later. There was no conflict with city growth. The city in

1695 only extended to Wall Street. As of 1728, the city had only grown 3 blocks further north of Wall Street along the west side of Broadway.¹⁴

In 1767, the farm belonged to Nicholas Bayard III (1736–1802), the great-grandson of the first Nicholas Bayard. The headquarters of the Bayard farm were at the southeastern corner of SoHo -- what is today Broome Street just east of Broadway (Figure 2). The Greene Street block was three blocks west and two blocks north of the farm headquarters. Lispenard Creek and its surrounding salt marsh blocked the northern extension of Broadway (Figure 2) at Duane Street, 14 blocks south of the Greene Street block. The block itself was just two blocks north of the marsh, on a small hill 30 feet above sea level, part of what the British called the Sand Hills.¹⁵

Nicholas Bayard III went bankrupt and had to sell the Bayard farm on November 1, 1789 to pay his creditors.¹⁶ The land was split up among 15 separate buyers.¹⁷

III. The residential period

The block had previously been ideal as a food supplier for the city and foreign markets. After enough city growth, the block would be well-placed for residences on the upper edge of the city for more affluent citizens to escape the congestion, poor sanitation, and disease downtown. This change was more predictable than other changes in the block's history (although the timing was still hard to predict).

The disease downtown included chronic Yellow Fever epidemics-- 1795, 1796, 1802, 1803, 1805, 1819, and 1822.¹⁸ Contemporary accounts gave the 1822 Yellow Fever epidemic some credit for spurring the exodus from downtown to Greenwich Village.¹⁹ More affluent residents fled the city in the summer of 1822 for the area near the Greene Street block: "Temporary stores and offices were erecting ... Within a few days, the Customs House, the Post Office, the Banks, the Insurance office and the printers of Newspapers located themselves in [Greenwich] village or the upper part of the Broadway [a block from Greene St], where they were free from the impending danger, and these places almost instantaneously became the seat of the immense business usually carried on..." (Hardie 1822 p 42).

The completion of the Erie Canal in 1825 also contributed to New York's northward extension because of population growth.²⁰ The city population had been only 33,131 in 1789 when Nicholas Bayard III went bankrupt; it reached 202,589 by 1830.²¹

For the block to be settled as part of the city, the street itself first had to be created as part of a network of city streets. Centralized planners did lay out many of Manhattan's streets in the famous Commissioners' Map of 1811. The Commissioner's planning only applied to the unsettled parts of the city, north of Greenwich Village on the west and Houston Street on the east, and hence excluded our block. Nicholas Bayard III had already hired in 1788 a surveyor named Casimir Goerck to lay out our block and much of modern SoHo as he was preparing to sell off the Bayard farm as part of bankruptcy proceedings. Although this was a private proposal for street layout, subsequent maps and planners kept reproducing it (including the 1811 Commissioners' Map), and the modern streets correspond exactly to the 1788 Goerck survey.²²

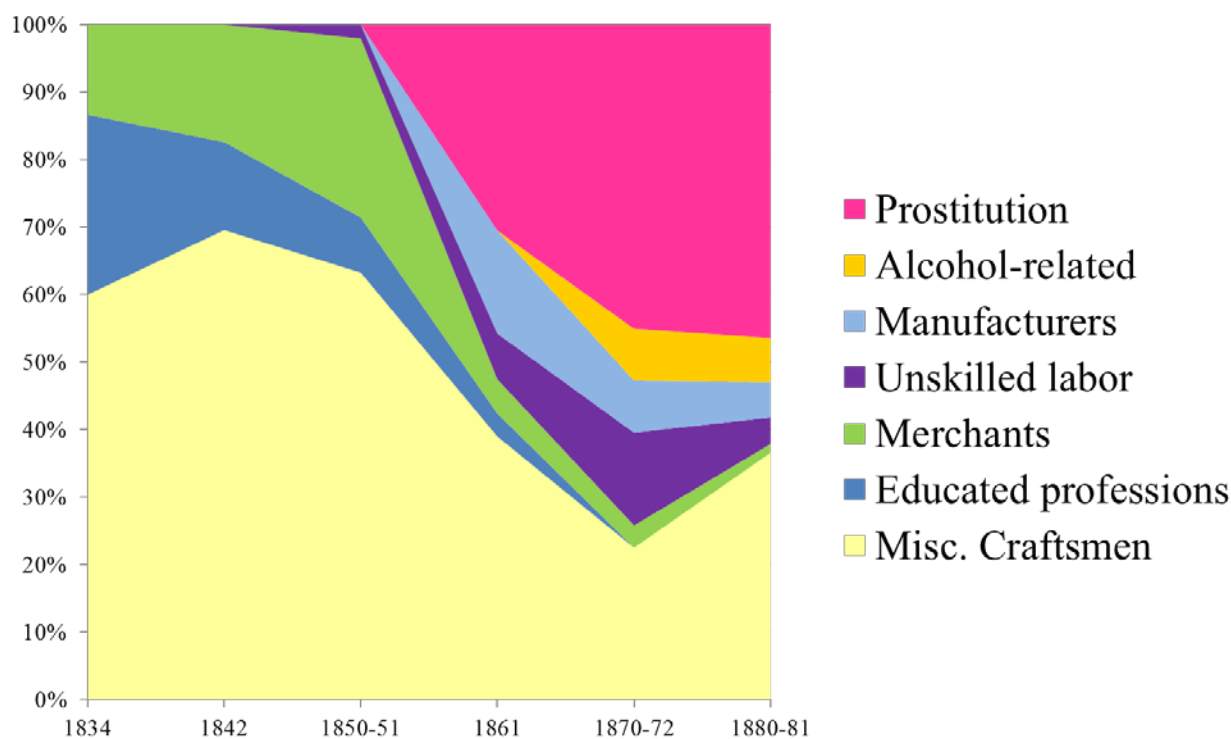
Based on contemporary maps, we infer the first urban housing around 1810.²³ In 1820, city tax assessment records showed that nine different men owned the 32 lots on our block, though most were still undeveloped. Only 3 houses and a foundry were recorded. In this same period, the city drained the wetlands that had obstructed northern city growth along Broadway. The city built a canal along what is now Canal Street, and leveled the Sand Hills around our block (which provided fill for the wetlands).²⁴

Over the decade 1820-1830, the block had a construction boom. By 1830, the Greene Street block contained twenty-six houses, a shop, and a Dutch Reformed Church. The block at that time still lay just inside the northern edge of settlement.²⁵ An 1835 map shows a public school just northwest of our block.²⁶

A private company started operating a horse-drawn omnibus in 1827 along Broadway, to be replaced in the 1830s and 1840s by many private companies and routes offering horse-drawn streetcars on rails. This facilitated the 1.5 mile commute of residents on the block to jobs downtown.²⁷

Our first comprehensive records in 1834 show 40 percent of the occupants of the block were merchants or pursued educated professions such as doctors, lawyers, reverends, or teachers. The other 60 percent pursued a large variety of crafts characteristic of a pre-industrial economy, such as carpenters, cabinetmakers, brass-founders, blacksmiths, bookbinders, and trunk-makers. Figure 3 shows the combined share of these 3 groups – merchants, educated professions, and craftsmen – accounted for almost all residents of the block until the 1850s.

Figure 3: Occupational shares of occupants on the block during its rise and fall as a residential neighborhood, 1834-1881 (source: primary data collected for this project)



Block residents were relatively well-off. For those residents that reported the value of real estate in the 1850 census, average real estate assets were about \$30,000 per household or 260 times contemporary GDP per capita (for comparison, 260 times GDP per capita today is about \$14 million). More than half of the families in the 1850 census had one or more live-in domestic servants (usually young women born in Ireland). Our data shows average real estate values on the block doubling from 1830 to 1850.

After the 1850s, however, the merchants, professionals, and craftsmen moved further uptown, with the first two almost disappearing on the block (Figure 3). A new occupation appeared on the block that upper and middle class residents were unlikely to see as acceptable neighbors—sex workers. The first documented appearances of brothels on the block date from 1859 at 122 Greene Street and 133 Greene Street.²⁸ Further improvements and extensions in privately-owned streetcar lines made it feasible for residents to flee further north in the city while commuting downtown (transportation is endogenous, both cause and effect of the city’s northward extension).²⁹

Since we have the names of individuals and businesses on the block (with some omissions) at intervals between 3 and 5 years, we can estimate turnover from one period to the next.³⁰ Turnover is often high in urban neighborhoods, even during “stable” periods. However, the implied rapid change at the block level is another feature of spontaneous behavior that is often neglected in analyzing larger aggregates. We calculated turnover for the entire period after 1834 in which we have information on names of residents, businesses, or business owners. The average annualized probability of staying from one year to the next for the entire period 1834-2013 is 0.785, which translates to a 30 percent chance of staying in the neighborhood for 5 years. We will periodically check whether the turnover rate increases during major shifts in comparative advantage of the block. Indeed, we find at the end of the residential period that the probability of any one household staying on the block for the next 5 years fell from 30 to 17 percent.

IV. Prostitution

Surprise 2: Greene street becomes one of New York City’s largest sex-work districts.

By 1870, the Greene Street Block contained 14 brothels, the highest concentration in the City (Figure 4).

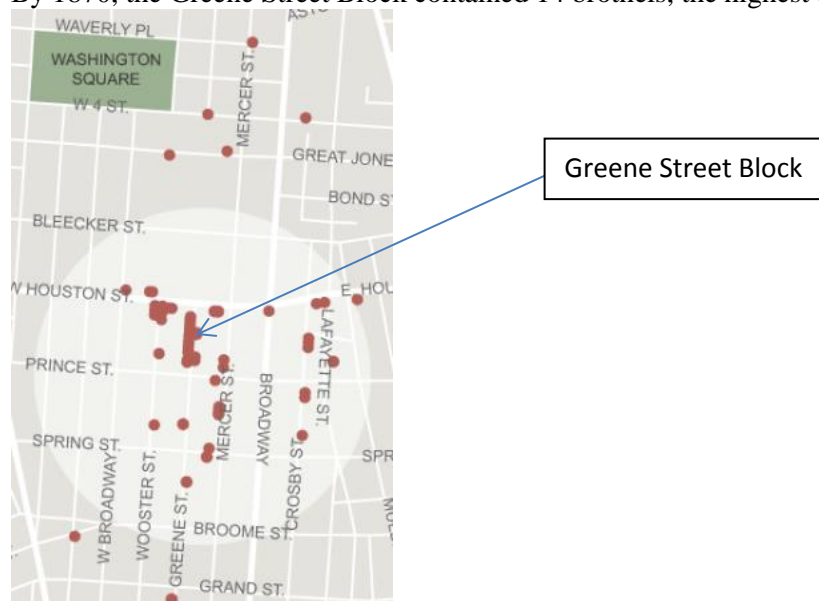


Figure 4: Brothels on Greene in 1870 (Source: *Gentleman’s Companion*; picture reproduced from *New York Times*)

Information on brothels understandably does not appear in city directories, but is available from *The Gentleman’s Companion* (1870), a pocket guidebook (anonymously published) of brothels in New York; there was an earlier such guidebook from 1859. More sporadic data comes from police and court records.³¹ We cross-referenced this data against the 1870 and 1880 censuses, which show a distinctive profile for brothels of an older woman (or sometimes a woman and a man) and a number of young, single women. Brothels are usually identified in the Census as boarding houses, with the profession of the single

young women not listed. Most residences have many prostitutes (up to 12), and they are generally in their early 20s.

The block's new comparative advantage in sex work reflected in part its proximity to large hotels and music halls on Broadway, its housing stock of townhouses with multiple small bedrooms left over from the residential period, and an overall increase in prostitution in New York.

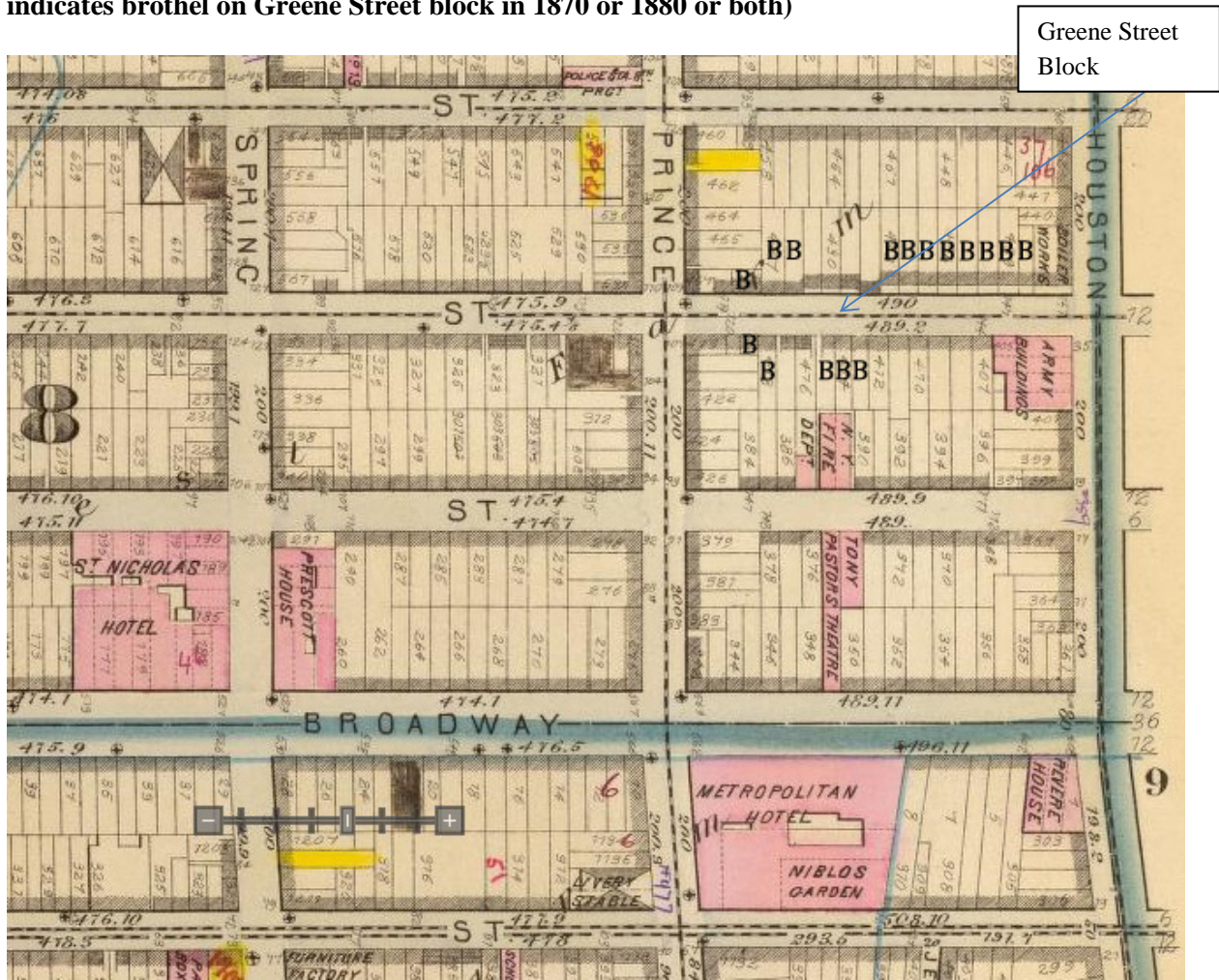
In the 1840s, both entertainment and prostitution were still downtown and not near the block. But then two large hotels called the Metropolitan (1852) and St. Nicholas (1853), and a theatre called Niblos Garden (1849) opened two blocks over on Broadway.³² Hotels and theaters kept arriving in the neighborhood;³³ Figure 5 shows those closest to our block in 1879.

Why did the hotels and theatres conglomerate in this part of the city in particular? First, hotels and theatres wanted to be in the geographic center of town, which was near the Greene St block during the brothel era – the northern edge of town had reached 23rd Street by 1853.³⁴ Second, there are agglomeration externalities. Large hotels like the St Nicholas meant that entertainment centers and other hotels all wanted to cluster nearby, attracting more hotels and theatres.

The city-wide factor is the rising demand for both hotels and prostitution. From the 1820s to the 1860s, as already noted, New York became America's largest port, an intermediary between domestic and foreign markets that brought travelling business people from all over America, and traders and seamen from all over the world. One writer described New York's population in 1861 as "strangers in a strange land," making traditional moral norms harder to enforce.³⁵

Entertainment venues attracted men seeking nightlife to the area near Greene Street and provided a way for prostitutes to meet them. Many of the shows at the theatres were designed to be titillating: an 1866 production at Niblo's featured a hundred "semi-nude" women.³⁶ The 1870 and 1880 Censuses show many Greene Street brothels had bartenders, musicians and cooks, suggesting that they offered a range of nighttime entertainment. The brothels apparently were profitable, as our data shows real estate values on the block doubling from 1860 to 1880.

Figure 5: 1879 Bromley map with Greene Street block brothels and nearby hotels and theatres (B indicates brothel on Greene Street block in 1870 or 1880 or both)



In 1880 the Greene Street was still full of brothels (as documented by the 1880 census), but they then disappeared. The entertainment area moved further uptown with the continued spread northward of the city with high population growth. During the late 1870s and early 1880s, eight new theatres opened around Herald Square (Broadway, 6th Avenue and 34th Street).³⁷ The brothels moved too, so later in the 1880s there were few brothels in or around the Greene Street block.³⁸

V. The Rise and Fall of the Garment Industry on Greene Street

Surprise 3: brothels are replaced by a thriving garment business.

The disappearance of the brothels also reflected a new comparative advantage for the block. Entrepreneurs demolished all but two of the small brick houses on the block, and erected new five- and six-story cast-iron buildings (mostly in 1881-1883, completed by 1889). These buildings were for three decades near the epicenter of New York City's huge and profitable garment trade.³⁹ Real estate values tripled from 1880 to 1890, then increased further until 1910.

The lowest trough in probability of staying on the block in the whole series 1834-2013 corresponds to this changeover of the building stock. The turnover rate was 98 percent between 1881 and 1886.

A new cast iron technology, invented in late 18th century Britain, came to dominate New York commercial architecture from 1850 to 1880.⁴⁰ It relied on mass-produced interchangeable parts so buildings could be built more quickly and more cheaply than in the past. Recent innovations in elevator technology allowed these buildings to be taller, while the thin but strong cast-iron columns allowed for large windows and large open internal spaces.⁴¹ Elias Howe's upgrade of Singer's sewing machine helped manufacturers produce greater volumes of clothing in these factories.

New York City was already the national leader in garment production. Garment production began in the tenements of the Lower East Side, but moved as regulation and increasing demand for space forced owners to move out of residential buildings and into purpose-built lofts and warehouses. Between 1860 and 1910, the number of garment plants in New York increased by a factor of 17 (from 600 to 10,000) while the number of people employed increased by a factor of 8 (from 30,000 to 236,000). In 1905, New York accounted for 51 percent of the value of clothing manufactured in the United States.⁴²

The garment industry benefited from new waves of supply of immigrant labor, such as Russian Jews. Many Russians blamed on Jews the assassination on March 13, 1881 of Tsar Alexander II, and a series of pogroms followed; then the next Tsar Alexander III issued in May 1882 punitive laws against Jews. So many Russian Jews immigrated to New York in succeeding years that by 1910 they made up 10 percent of New York City's population.⁴³

In 1890, 90 percent of garment factory owners below 14th street were German Jews, who had arrived during an earlier wave of immigration and had first established businesses in the Lower East Side tenements before moving to the factories of Greene Street and surrounding blocks. Many Russian Jewish immigrants had tailoring experience, and they lived near the Greene Street block on the Lower East Side.⁴⁴

Massive Italian immigration to New York from 1880 to 1910 also contributed (by 1910, 7 percent of New York's population was Italian-born).⁴⁵ Italian immigrants to New York tended to settle in one of four separate "Little Italys" south of 14th street, the most famous of which was a few blocks east and south of the Greene Street block around Mulberry north of Canal (see figure 6 below). Another Little Italy was even closer, from West Broadway to Hudson Street, between Canal and West 4th street, just two blocks to the west of the new buildings on Greene Street block.⁴⁶ Italian women in particular specialized in the 'needle trades.'⁴⁷ Together, Russian Jews and Italians made up 90 percent of the garment industry's labor force in New York City.⁴⁸

Greene Street was in a good location *within* New York City to take advantage of broader developments in infrastructure and immigration. Figure 6 shows the Greene Street block and nearby Hudson River piers in 1890 (0.7 miles away). For example, from the 1870s the White Star line (pier 45) traveled from Liverpool

(UK) to New York, with a stop in Ireland. Although immigrants were one of the main cargos, the ships also carried goods, especially on the route back to Europe.⁴⁹ Compagnie Générale Transatlantique (pier 42) travelled to Le Havre in France. The Pacific Mail Steamship Company (pier 34) shipped to Panama, to the West Coast of the US (mostly San Francisco), and to China and Japan. The block was also 0.7 miles from the large freight depot for Cornelius Vanderbilt's Hudson River Railroad, connected to his New York Central Railroad, which gave the block connections to the markets of the American interior.⁵⁰

Within the city, the continuing development of an ever-improving network of elevated railroads,⁵¹ Broadway cable cars,⁵² and street car lines⁵³ made transportation faster between Greene Street block and these other points, good for the commute of the owners, managers, workers,⁵⁴ and customers to the block (see Figure 6). Freight moved by horse-drawn trucks (later gasoline-powered),⁵⁵ in which proximity to the railroad depots and piers was also important.

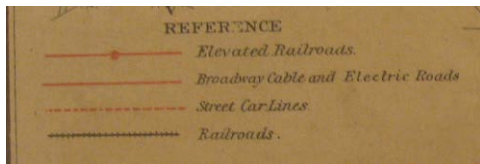
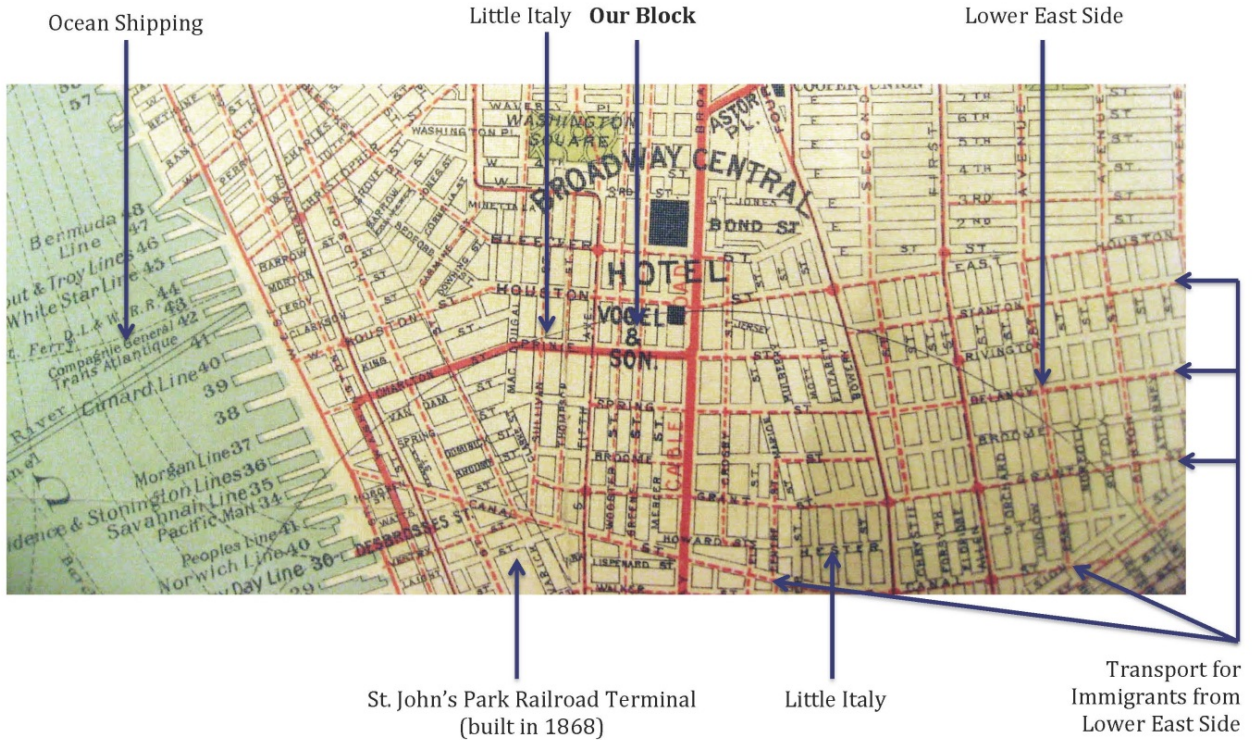
The other local factor was that the Greene Street block was close to Broadway, the most prestigious retail avenue. Increasing demand for the limited commercial space and consistently high rents on Broadway pushed many firms into the side streets.⁵⁶ The garment firms that moved to the area around Greene Street used the ground floor with its large windows and light-filled spaces to display merchandise and take orders from customers. Firms used upper floors for manufacturing and storage.⁵⁷

New York real estate agent Leon Tanenbaum testified that in 1880 Broadway had held all manner of "clothiers, dealers in gents' furnishing goods, jobbers, furriers, and tailors' and clothiers' trimming dealers, suit and cloak manufacturers" but had witnessed at the end of the decade a "comparatively large influx to the cross streets." These firms abandoned Broadway because the new buildings were "superior to most of the old-time buildings on Broadway as they have passenger and freight elevators, steam heat, sanitary plumbing, good light and ventilation, and other attractive features all of which are essential to the health, comfort and convenience of those who transact their business in them."⁵⁸ In 1886, business directories show a total of 66 business listings on the block, of which 82% are garment-related.

The garment industry was prone to clustering, as the maps from the Factory Inspector's Department show (Figure 7 below). Agglomeration economies in this context reduced garment firms' costs of transporting goods (raw materials and finished clothing), people (the labor force and customers) and ideas (new styles and trends for each new season, as well as improvements in manufacturing and marketing technologies.)

Figure 6: Transport and Neighborhoods around Greene [1890 Broadway Central Hotel Map, dotted red lines show streetcar lines, solid red lines show cable cars]

1890 Broadway Central Hotel Map with Transportation Links for Greene Street Block



By 1890 the transformation to a commercial and industrial zone on our Greene Street block was complete. The Real Estate Record and Builder’s Guide of 1890 declared the block now thriving and respectable, though they alluded to the block’s dissolute recent past:

During the last few years the wholesale trade has invaded...in considerable force. Mercer street, Greene street, and measurably Wooster street, have become business streets in sympathy with the movement on Broadway; and they have been lined with some very respectable wholesale

warehouses as far northward as Houston street. A man can walk through those streets now without hearing himself too frequently accosted through closed window shutters.⁵⁹

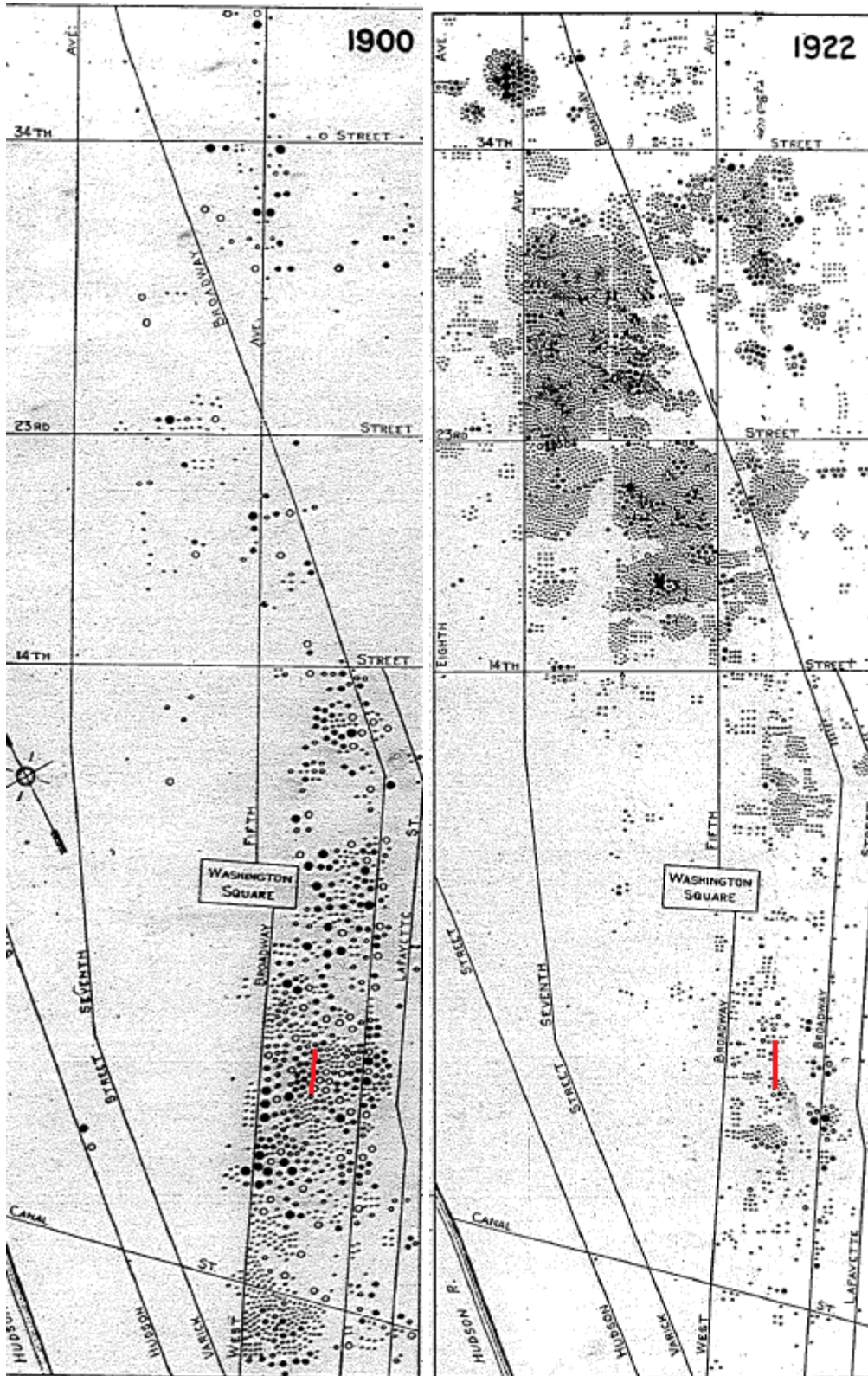
About the development of the cast-iron business district, the same writer opined: “it is doubtful whether the reconstruction of a long-improved district by individual enterprise ever went so far in so short a time.”⁶⁰

Surprise 4: the garment industry moves uptown and Greene Street enters a long decline

The same technological advances that began the boom on the block ended the boom after 1910. Further advances in building technology and demand for new, bigger, more modern spaces pushed the garment industry’s center of agglomeration further uptown.

Figure 7 shows the Greene Street block (marked in red) in 1900 still in the center of the city’s largest cluster of women’s clothing firms. By 1922, the Greene Street block had only a few women’s garment businesses left compared to the large uptown clusters.

Figure 7: Location of women's garment plants in 1900 vs 1922. Red line shows the Greene Street block. Map reproduced from Selekman et al. (1928)⁶¹



After three decades (1880-1910) of high real estate prices on the block, there was a steep drop from 1910 to 1920, leaving the value of the block lower than it had been in 1870 before the garment boom.

The Triangle Shirtwaist fire of March 25, 1911 increased demand for safety regulations. 146 people, mainly immigrant women, died when a fire broke out on the top three floors of the garment factory at the corner of Greene Street and Washington Place, 6 blocks north of our block. As technologies allowing safer buildings continued to evolve, and the Triangle Fire helped unions agitate for better working conditions for factory workers, the garment industry shifted into the newer, safer buildings.

The older buildings on our stretch of Greene Street found it hard to keep up with new fire safety standards. Even if they could partially evade new fire safety regulations, they were then penalized by insurance costs. The cost of fire insurance for textile firms was much lower in the safer buildings uptown.⁶²

Technological change also gave the new buildings efficiency advantages in addition to better fire safety. In 1922, the newest buildings had chutes and central package processing rooms to alleviate some of the chaos and congestion caused by the trucks that come to pick up finished packages at the end of each workday. They were up to 24 stories tall with more than 30,000 square feet per floor (compared to an average of 4,000 square feet per floor on the Greene Street block), allowing plenty of room for the larger, horizontal conveyor belts allowing factories to produce ever-larger volumes. Further improvements in rapid transit (including the opening of the first subway line, along Broadway, in 1904) made it feasible for workers to commute further uptown to the new garment center.⁶³

The buildings on Greene Street after the garment bust remained inhabited, although by different kinds of businesses. The probability of staying on the block from one year to the next fell in 1910 and stayed low through the early 1920s (implying annual turnover of 40 percent per annum, which implies 92 percent turnover in 5 years). Only the US Postal Service did any further construction on the block after the boom, a post office on the northeast corner of Prince and Greene in 1910.

VI. The Battle over Prescriptive Planning

The middle of the 20th century saw a battle over the neighborhood (soon to be christened SoHo, for South of Houston) and its Greene Street block. Two visions for the area competed with each other, with prescriptive planners like Robert Moses, on one side, against neighborhood activists and those who emphasized spontaneous development like Jane Jacobs, on the other side.

The planners' desire to address the urban blight was understandable. In the 1930s, homeless and unemployed men constructed a squatter's camp at the north end of the block, which became known as "Packing Box City".⁶⁴

The Holden-McLaughlin Plan of 1946 proposed to make both Houston and Broome into major expressways for truck traffic, and to demolish and redevelop all of modern-day SoHo. The plan said that all of SoHo, shown as Area C in Figure 8, "has reached such a state of depreciation and obsolescence that recent public improvements seem to have had little effect upon it" and is "recommended for clearance and redevelopment."

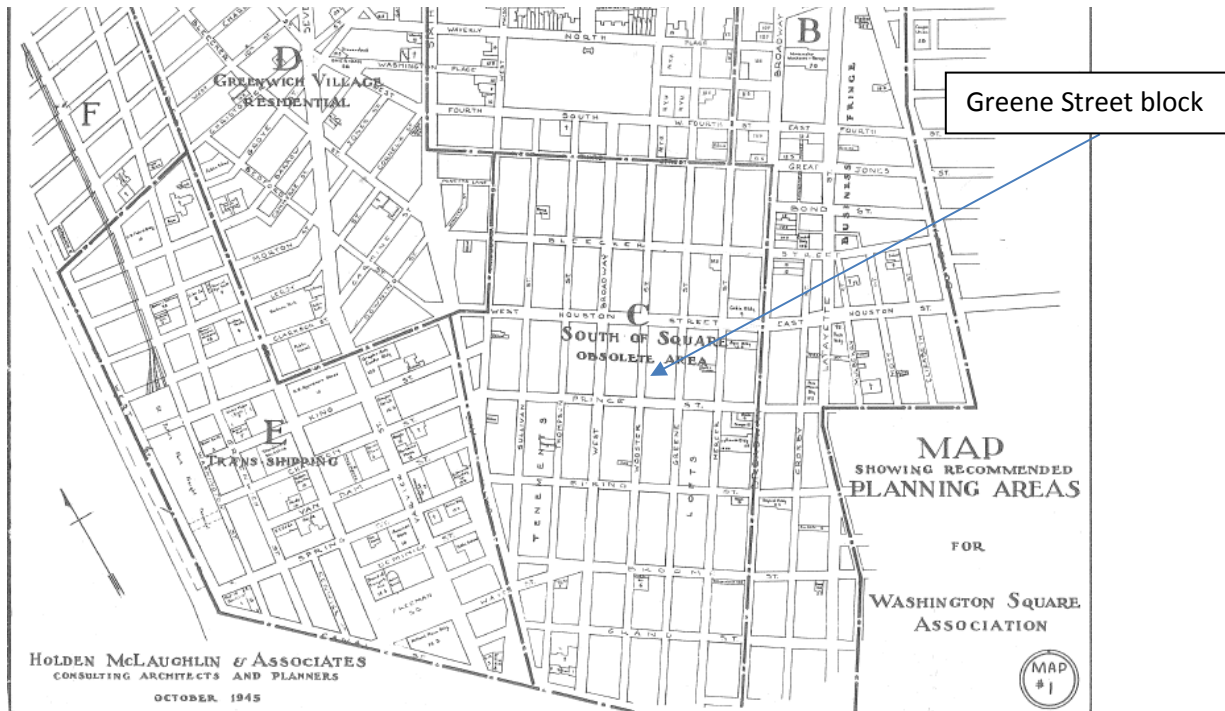


Figure 8: Illustration from the Holden-McLaughlin Plan of 1946, showing Greene Street Block (arrow) in the center of the “obsolete area.”

From 1922 to 1946, the land on our block depreciated by around 50%. When calculating the assets on our block specifically, the Holden-McLaughlin planners said that “None of the present buildings in the block are really worth preserving. This is a clear case calling for complete demolition and complete replacement...the depreciation is so widespread that improvement cannot take place except by concerted action.” The planners suggested using eminent domain as a strategy “to prevent obstruction through holdouts.”

Urban planners believed the block’s former success at manufacturing could be revived through such concerted action. The 1946 Holden-McLaughlin Plan included another map showing their intended replacement of all of Soho, including Greene Street, by “New Modern Loft & Manufacturing & Storage.”

The federal government began providing cities subsidies for “slum clearance” under Title I of the US Housing Act of 1949.⁶⁵ Urban planners also believed they needed to supply new types of residential neighborhoods. They thought the street-centered urban grid system created unhealthy living conditions, depriving people of open space, air, and light. The proposed remedy was the superblock containing “towers in a park,” creating enormous tall buildings set back from the street amid open plazas and green space.⁶⁶

In a 1953 speech, the city’s most famous and powerful urban planner, Robert Moses said:

I take this occasion to plead for the courageous, clean-cut, surgical removal of all our old slums.... [T]here can be no real neighborhood reconstruction, no superblocks ...no widening of boundary streets... without the unflinching surgery which cuts out the whole cancer and leaves no part of it which can grow again, and spread and perpetuate old miseries.⁶⁷

In Moses' defense, he had previously helped provide such public goods as highway arteries necessary for New York's continuing development. But the Holden-McLaughlin Plan and Moses's plans for the block and its surrounding neighborhood exemplified the most prescriptive kind of planning, trying to directly determine outcomes on the block. From 1951 on, Moses unveiled plans that proposed to tear down 53 acres of existing buildings, to consolidate 27 village blocks into 10 "superblocks." He also sought to turn Fifth Avenue into a north-south four lane highway that would extend straight through the middle of Washington Square Park, bisect SoHo and join with a "Lower Manhattan Expressway" (LOMEX) that would run along east-west along Broome Street (2 blocks south of Greene Street), connecting New Jersey and Long Island. A 1960 version of the LOMEX plan required eviction of 2,000 families and 800 businesses. Alternative LOMEX designs discussed in the 1960s included 80-foot-high skyways.⁶⁸

These same plans mobilized neighborhood resistance. A Joint Emergency Committee to Close Washington Square Park to Traffic—derided by Moses as "a bunch of mothers"—won a first victory, a ban of automobile traffic through Washington Square Park.

Jane Jacobs gained city-wide and national attention for her defense of bottom-up evolution of high-density neighborhoods in her book "The Death and Life of American Cities" in 1961. Jacobs mounted an attack on Modernist urban planning: "As in the pseudoscience of bloodletting, just so in the pseudoscience of city rebuilding and planning... a plethora of subtle and complicated dogma have arisen on a foundation of nonsense."

Jacobs articulated a different vision of the successful city, one based on people spontaneously reacting to other people:

...[T]hat the sight of people attracts still other people, is something that city planners and city architectural designers seem to find incomprehensible. They operate on the premise that city people seek the sight of emptiness, obvious order and quiet. Nothing could be less true. The presences of great numbers of people gathered together in cities should not only be frankly accepted as a physical fact – they should also be enjoyed as an asset and their presence celebrated...⁶⁹

The combination of local resistance and Jacobs' alternative vision defeated Moses' plans. Robert Moses lost his post in 1968.⁷⁰

VII. The Artists and Art Galleries

Surprise 5: artists and art galleries move onto Greene Street

A surprising and accidental factor helped attract artists and galleries into the cast iron buildings on Greene Street and surrounding blocks -- the growing size of artists' canvases, sculptures and experimental works, reflecting international artistic trends.⁷¹ For example, Abstract Expressionism was a New York-based but internationally prestigious movement that featured "monumentally scaled works."⁷² In 1966, New York Times art critic Grace Glueck asked, "Will today's art, getting bigger all the time, outgrow the uptown scene?" To accommodate the new larger canvases, small uptown galleries "must dismantle stair rails, remove doorframes and hoist whole shows through windows."

The large spaces at low rents in SoHo did not have that problem. Galleries in SoHo, like Leo Castelli at 142 Greene Street, were well-suited to exhibiting large canvases like those by Robert Rauschenberg, Roy Lichtenstein, and Jasper Johns.⁷³ By 1980, SoHo showed a large concentration of art galleries (Figure 9).⁷⁴

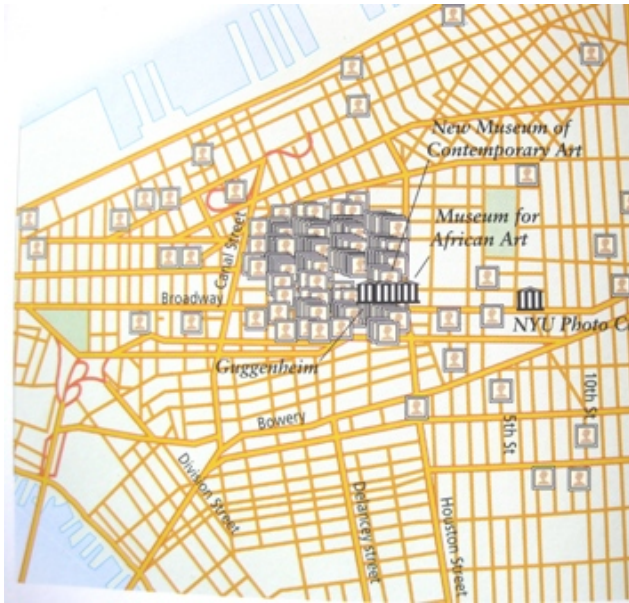
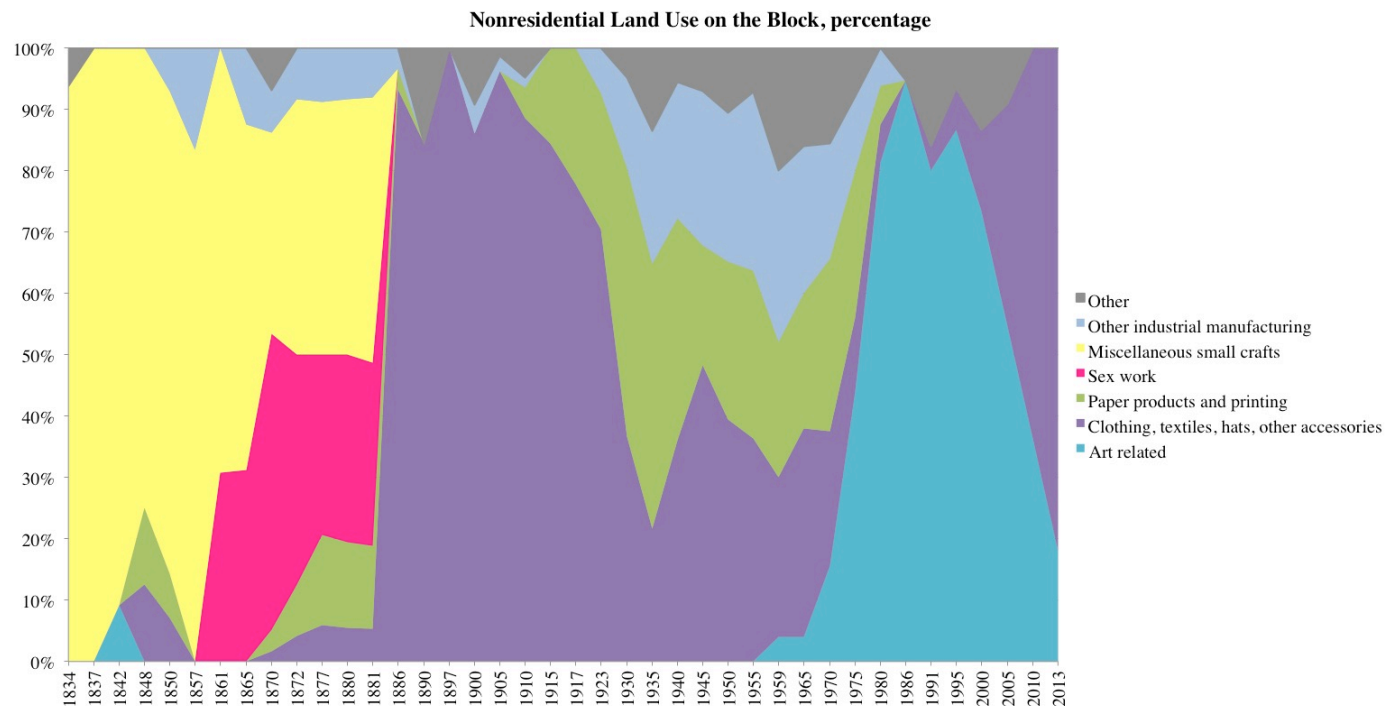


Figure 9: Soho's concentration of art galleries. Picture reproduced From Eric Homberger, *The Historical Atlas of New York City*

Meanwhile, the previous industrial occupants of the Greene Street were going out of business or moving. Greene Street followed the citywide trend of a decline in manufacturing, another trend the would-be urban planners of Greene Street had failed to anticipate.

Figure 10 shows the nonresidential sectoral shares on the block, based on our detailed dataset over the entire period 1834-2013. We see the previous eras of craftsmen working at home, sex work, garment boom and bust, and then mixed industrial use during the “slum” period. After 1960, paper and printing and other manufacturing disappear on the block as artist residents and galleries moved in.

Figure 10 Non-residential composition of the block 1834-2013

The arrival of the artists and galleries assured the survival of the buildings in SoHo. Margot Gayle, the founder of the Friends of Cast Iron Architecture, commented in the *New Yorker*: "It was lucky that the artists and sculptors started moving into the lofts here, because they attracted attention to the buildings and caused people for the first time in generations to see what lay back of the rust and grime and the general disrepair that hid their beauty. Often, it turns out that these buildings are the most valuable heritage a city has."

Gayle was right that the inherited capital stock of the block from the days of the garment boom, saved by the artists, would prove extremely valuable to the block and the city.

VIII. The Present

Surprise 6: An explosion in property prices as Greene Street becomes one of NYC's premier luxury retail/residential areas.

Real estate values on the block doubled from 1970 to 1990. After the 1990s, the high rents made possible by artists and art galleries drove out the artists and art galleries. Artists moved on to new neighborhoods -- Williamsburg, Brooklyn in the 1990s, or Bushwick today. Art galleries after the 1980s-1990s high point (see Figure 10 above again) moved to places with much lower rents, such as Chelsea.

For the non-residential addresses in the block, the declining art galleries on the block were replaced in the new millennium mainly by luxury clothing retail stores (Figure 10 above), returning the block to garments again a century after the first garment boom. Our time series on turnover rates of inhabitants of the block also shows more neighborhood stability in the art and residential/retail periods compared to the

trough at the end of the previous garment boom, with the annualized probability of staying on the block staying between 0.85 and 0.9.

The resident artists and galleries set the stage for the revival of the block as an upper class residential neighborhood after 1980 for the first time in more than a century. Our data shows a surge in the share of addresses occupied by residents, which has continued up to the present.

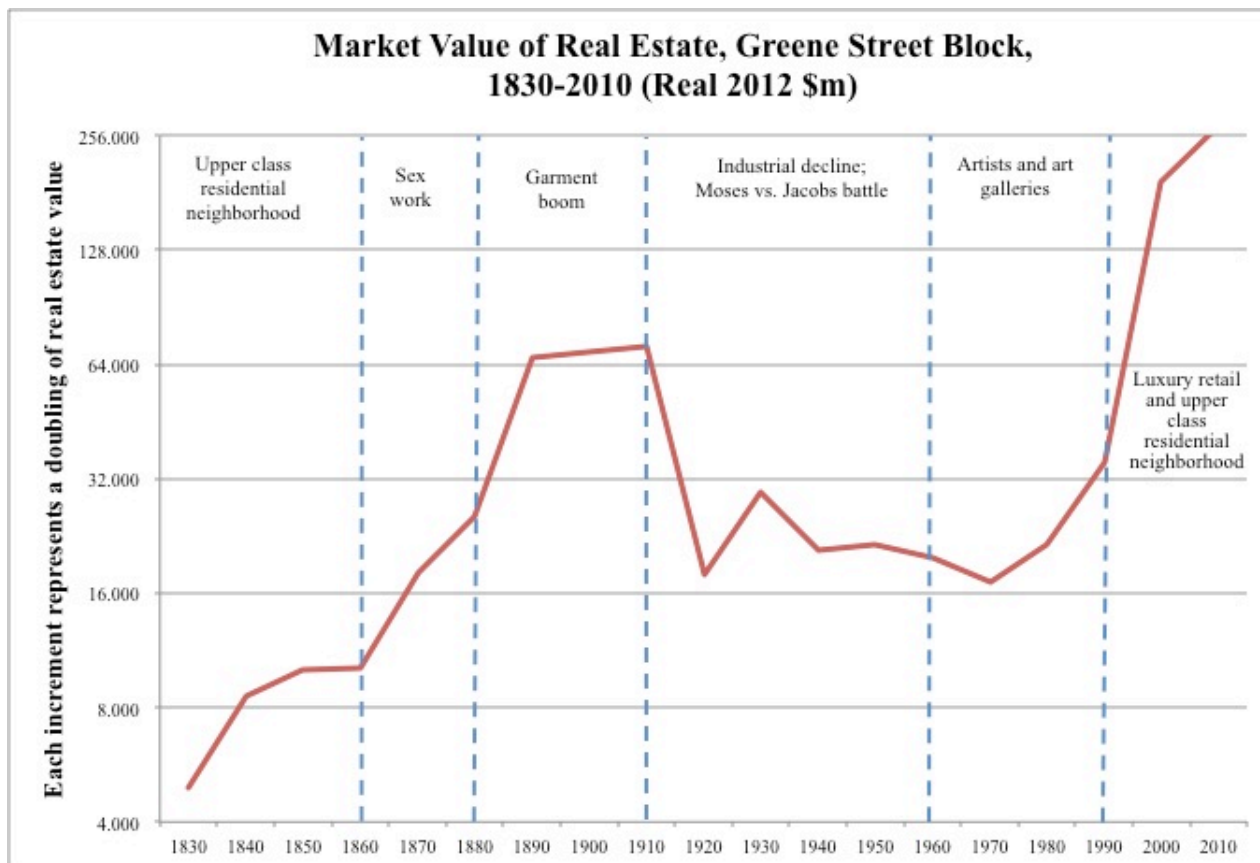
In 2002, Apple opened its largest retail store to date, and the first in New York City, on our Greene Street block. This was a harbinger of today's block of mainly luxury retail stores on the ground floors and high income residents on the upper floors. Heavy traffic by shoppers and tourists for brands with more mass appeal on the SoHo blocks of Broadway two blocks over seems to fuel a market for higher-end retail on parallel side streets like Greene. Today, Greene Street between Prince and Houston features such designer stores (some of them new arrivals even while we worked on this paper) as Ralph Lauren, Paul Smith, Alessi, Proenza Schouler, Dior, Costume National, Hugo Boss, and Warby Parker.

For example, the cast iron building at 133 Greene (the former site of an 1850 residence, then a brothel, and then a garment factory) is a co-op, with its ground floor occupied by Christian Dior Homme. The residents on the upper floors are an international group of successful real estate professionals, businessmen, academics and architects. The last five units sold in the building had sale prices between \$2.5 and \$3 million.

Recent stories in the real estate press serve as a snapshot of the block's current image: "Greene Street turns to gold," "the hottest block," "a magnet for high-end shops and shoppers alike," "the little Madison Avenue of SoHo,"⁷⁵ "Greene Street has become the street in Soho."⁷⁶

Figure 11 summarizes all our previous information on average real estate values rising and falling and then adds the data up to the present. The logarithmic scale shows an eightfold increase in real estate values in 1990-2010, by which measure the block is more successful than ever before in its history.

Figure 11: Real estate value of the block, 1830-2010, millions of 2012 dollars, base 2 logarithmic scale



IX. Conclusion

A long history of one city block shows a pattern of recurrent surprises. The Dutch did not expect New York to thrive when they gave the Greene Street block to slaves and then gave up New York altogether in favor of Suriname (Surprise 1). The affluent residents of the block in 1830-1850 did not expect brothels (Surprise 2). The brothel owners, workers, and customers in 1880 were likely surprised to see a thriving garment industry take over the block (Surprise 3). The garment industry did not expect the severe downturn after 1910 (Surprise 4). The urban planners in the 1940s and 1950s did not anticipate the block would explode in value again, first with art galleries (Surprise 5), and then with today's luxury retail stores and residences (Surprise 6). The block's story ends in the present at a high point in real estate value, but the history reminds us that the next surprise could be negative.

Although we cannot directly measure TFP, it is one of the major determinants of value of the block, and so volatile land value is at least suggestive of large TFP volatility, at least partly driven by the surprises of creative destruction. The migration of particular sectors and sector-specific factors of production into and out of our block is suggestive of sector-specific TFP shocks. The long period between Surprises 1 and 2, contrasted with much shorter periods between the last 5 surprises, is consistent with a picture of creative destruction accelerating after the pre-industrial period.

Unlike US economic development, the block does not show a steady trend but a succession of rises and falls and rises, with the swings unpredictable and contingent on the interaction of many factors, some

local, some citywide, some national, and some global. The block was built up, then torn down and rebuilt, then almost torn down again by city planners, then surviving to make possible today's success.

The long period of depressed real estate values in the 1920s through the 1950s illustrates how painful it is to tolerate the "destruction" side of spontaneous creative destruction. Yet if the prescriptive planners like Robert Moses who sought to cure the block's perceived failure at that time had succeeded, they would likely have prevented the success on the block from the 1970s through the present.

As we have already emphasized, there were more flexible types of public planning that did take place and that contributed to the long-run success of the block – such as laying out street grids, draining the swamps, the Erie Canal, providing public schools, water, sanitation, fire services, and policing. At the same time, economic and political freedoms allowed the spontaneous forces to operate within this flexible planning, operating through both markets and politics (such as the activism of Jane Jacobs and her allies).

The chaotic four-century history of this one city block suggests that such spontaneous forces play a larger role in development than is appreciated when the focus is understandably on intentional actions to produce desirable outcomes. The history of the block dramatizes Kenneth Arrow's quote that opened this paper on one of the biggest insights of economics --that desirable outcomes can occur even when no one agent intended them.

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Endnotes

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² including the buildings on both sides of the street and the corners at each end

³ The sources are: US Federal Census Records, 1830-1880; NYC Residential and Commercial Directories, 1834-present; NYC Tax Assessment Records, 1808-1940s; Sanborn Manhattan Land Book, 1905-present; NYS Factory Inspectors Reports, 1890-1913; NYC Reverse Listing Telephone Books, 1930-1993.

⁴ Based on the careful ecological reconstruction project by Sanderson (2013), using old maps that showed ecological features like the British Headquarters Map (1783).

⁵ Foote 2004, Chapter 1.

⁶ Map of Original Grants and Farms (Plates 84B-a and 84B-b), in Stokes and Macarthy 1928; Stokes 2008; Dolkart 2006, p. 11

⁷ Rink 1986; Stokes 2008; Kammen 1995, pp. 44-46

⁸ Shorto (2005), p. 295

⁹ Burrows and Wallace 1999, p 122.

¹⁰ Foote 2004; Christoph 1983;

¹¹ Matching modern street names and places to this map is based on others who have done the same exercise with this or related maps with the natural features, such as Sanderson (2013, Kindle Location 600), and the 1865 Egbert Viele Map.

¹² Landmarks Preservation Commission 1973, pp. 4-5; Map of Original Grants and Farms (Plates 84B-a and 84B-b), in Phelps Stokes and Macarthy 1928; 1868 Map of the West Bayard Farm by J.B. Holmes (reproducing the situation as of 1788). Augustine Herrman (1605-1686), a former Dutch West India Company official originally from Prague, had acquired the land around the block in the 1660s. He left the land in his will to his brother-in-law -- Nicholas Bayard.

¹³ Bayard’s mother was Stuyvesant’s sister, while his father’s sister was Stuyvesant’s wife.

¹⁴ Maps in New York Public Library collection: New Yorke, 1695 in History of the city of New York : its origin, rise and progress. (New York : Barnes, 1877-1896) Lamb, Martha J. (Martha Joanna) (1829-1893), and The City Of New York From An Actual Survey By James Lyne, 1728. We note some caveats about the evidence from maps here and later: (1) some of them are later reconstructions, such as the 1695 map in this note. (2) some maps show street layouts proposed, and not actual streets or buildings. Street layout is an indicator of growth of the city but should not be equated to actual building and settlement. The 1767 Ratzer map is one of those maps that shows proposed street layouts along with actual streets. However, we confirmed the Ratzer map implications for the extent of settlement along Broadway by checking it against the 1775 Montresor map and the 1782 British Headquarters Map, which both do show actual settlement.

¹⁵ Confirmed also by the 1865 Egbert Viele map that retrospectively showed the street grid mapped onto pre-settlement water courses and wetlands. The 1775 Montresor map shows the Sand Hills labeled by the name the gave them, Zantberg. For other evidence on the Sand Hills, see Steiger 2015, p. 53, Sanderson (2013, Kindle Location 834), and British Headquarters Map 1783. Janvier 1894 (pp. 40,192-194) gives a historical account confirming the blockage of northern settlement along Broadway by the wetlands, and describes the Sand Hills (p. 203).

¹⁶ The Revolutionary War had disrupted the farm’s operation, accelerating a transition out of agriculture that was going to happen sooner or later anyway. The British Headquarters Map 1783 shows British fortifications and destroyed “rebel fortifications” crossing the farm. The 1782 Map of New York by John Hills shows the Bayard farm headquarters just east of Broadway inside the British fortifications, with the rest of the farm lying outside the fortifications. The war also reduced city population, reducing the demand for the farm’s output.

¹⁷ From the notes to the 1868 Map of the West Bayard Farm by J.B. Holmes (reproducing the situation as of 1788). A merchant and broker named James Saidler (1751-1803) purchased the southern portion of our block. Anthony Lisenard Bleecker (1741-1816) purchased the northern portion. Bleecker was a real estate speculator and the owner

of the neighboring Bleecker Farm who gave his name to Bleecker Street (one block north of our block). Another buyer was one of the founders of Wall Street, a second generation Portuguese Jewish immigrant named Benjamin Seixas. We take note of him because his grandson of the same name we later find residing on our block at 133 Greene Street in the 1850 Census. Seixas senior bought a small portion 6 blocks west of our block, on the northwest corner of what is now Houston and Sixth Avenue. We also located others of his descendants (relatives of the 1850 Benjamin Seixas) residing in the Soho area between 1830 and 1850.

¹⁸ Duffy (1968), pp. 101-121.

¹⁹ See also quotes in Janvier 1894, pp. 144-146.

²⁰ In the mid 1800s agglomeration forces became much stronger due to changes in shipping technologies across the Atlantic. According to Glaeser (2005), the advent of faster and safer large ships changed the cross-Atlantic trade from a point-to-point system to a hub-and-spoke system. Because the Erie Canal connected New York to interior markets, New York triumphed over Philadelphia and other ports as the preferred hub. See also Albion and Pope (1939), and Bernstein (2005).

²¹ <http://www.census.gov/population/www/documentation/twps0027/twps0027.html>

²² Greene Street was eventually named after Revolutionary War hero General Nathanael Greene, while Houston Street was named after the husband of Nicholas Bayard III's daughter Mary, William Houstoun. Koepfel (2015)

²³ Stephen Ludlow's survey map Dec 29 1813, as seen in Stephen Ludlam, Properties between Greene and Mercer Street south of Houston (New York Historical Society, 1835). See Commissioners Map 1811, which shows development just past the block, and 1803 map show development not yet reaching the block. The Plan of the city of New York, 1808 (Copied from D. Longworth's map of 1808 for D.T. Valentine's Manual for 1852) shows Greene Street surrounded by farms and trees. Buildings are advancing up Broadway but none yet north of Spring Street. Adams et al. 1929 (p. 53) reproduces a map confirming the Commissioner's Map for 1811, but then shows little movement to 1817.

²⁴ Janvier (1894), pp. 68, 207. Steinberg (2015), p. 66; Sanderson (2013, Kindle Location 856), Burrows and Wallace 1998, p. 359. Parts of the old wetlands area are still prone to flooding during heavy rain storms, such as the intersection of Grand and West Broadway 3 blocks south and 2 blocks west of the Greene Street block.

²⁵ City tax assessment records; Hooker's New Pocket Plan Of The City Of New York, 1829; David H. Burr map 1832. These maps show the extent of settlement as a shaded area. This evidence should be taken with some caveats as it is not clear what the evidence of settlement is based on, and there is sometimes disagreement between different maps made around the same time.

²⁶ Henry S. Tanner map 1835.

²⁷ Records that list both places of business and residence confirmed such downtown commutes on our block; Roess and Sansone 2013, pp. 54-58, discuss the transit history.

²⁸ Timothy Gilfoyle, author of City of Eros, kindly shared his primary source data with us, which helped us document the 1859 brothels. 133 and 122 Greene Street were listed as brothels in an 1859 publication in New York, "Directory to the Seraglios in New York, Philadelphia, Boston, and all the principal cities in the Union," with the author given as "Free loveyer." Both addresses were listed brothels in an 1870 list (see below). 122 Greene Street was listed in the 1861 City Directory as a female-headed boardinghouse, consistent with being a brothel from later evidence matching such entries with an 1870 listing of New York brothels (see below).

²⁹ Roess and Sansone 2013, p. 60; Adams et al. 1929, p. 53. Lockwood (1976) discusses the general pattern of the upper class moving steadily northward with the northern growth of the city.

³⁰ We start with the fraction of individuals who remain from one benchmark year to the next, p_N , and back out the annualized probability of staying p_N^A where there are T years between the benchmark years (assuming a constant exit rate):

$$(1) p_N = (p_N^A)^T$$

³¹ Timothy Gilfoyle, author of City of Eros, kindly shared his primary source data with us, which helped us document the 1859 brothels. 133 and 122 Greene Street were listed as brothels in an 1859 publication in New York, "Directory to the Seraglios in New York, Philadelphia, Boston, and all the principal cities in the Union," with the author given as "Free loveyer." Both addresses were listed brothels in an 1870 list (see below). 122 Greene Street

was listed in the 1861 City Directory as a female-headed boardinghouse, consistent with being a brothel from later evidence matching such entries with an 1870 listing of New York brothels (see below).

³² Niblos Garden was rebuilt from a previous incarnation after a fire and reopened in 1849.

³³ Hotels: Hotel de Europe (550 Houston), Smithsonian Hotel (604-6 Broadway), Metropolitan hotel (580 Broadway), Collamore Hotel (532 Broadway), Prescott House (531 Broadway) and St Nicolas Hotel (519 Broadway). Entertainment venues: Metropolitan/Tripler Hall (677 Broadway), Old Stuyvesant Hall, Pfaff's Café (645 Broadway), Laura Keene's Olympic Theatre (624 Broadway), Niblo's Garden Theatre (Prince & Crosby) Henry Wood's Marble Hall (561 Broadway), Taylors' Saloon (555 Broadway)

³⁴ Atlases of New York city. / Maps of the city of New York / surveyed under directions of insurance companies of said city. Perris & Browne 1853 Plate 32; also for Niblos Garden see Samuel Augustus Mitchell map 1853. The hotel building boom in the early 1850s may also reflect the Exhibition of the Industry of All Nations which was held in New York City in 1853.

³⁵ Samuel Halliday quoted in Gilfoyle (1992) *City of Eros* p113

³⁶ Ibid., p.128, 130

³⁷ Gilfoyle, *City of Eros*, p. 204

³⁸ Gilfoyle, *City of Eros*.P 200

³⁹ Selekman et al. (1928)

⁴⁰ Landmarks Preservation Commission 1973, p. 10, 22.

⁴¹ Nevius and Nevius (2009)

⁴² Pratt (1911), p. 40, p. 80. Filipetti 1925, p. 15 found the share of New York in US women's clothing to be 72.5 percent in 1919, 42 percent for men's clothing, 66 percent for millinery and lace goods.

⁴³ Jackson (1995), p. 584; Binder and Reimers (1995)

⁴⁴ Sachar (1992)

⁴⁵ Jackson (1995), p. 584

⁴⁶ Brown (2007), Dolkart 2006 pp. 44-46; Binder and Reimers(1995), p. 136

⁴⁷ Odencrantz (1919), Kessner (1977)

⁴⁸ Selekman et al (1928)

⁴⁹ On the return leg, the steerage would be used for livestock, giving it the nickname "cattle class".

⁵⁰ The terminal opened in 1868 and thereafter "acted as a magnet" to warehouses to relocate from their old locations near the East Side port facilities (Burrows and Wallace, p. 944-945). Shown on Watson's New Map of New York and Adjacent Cities, 1874

⁵¹ Opening in 1878, a north-south elevated railroad went down Sixth Avenue, then over on Houston, and down West Broadway, the street two blocks over parallel to Greene Street. Map of New York and vicinity 1893, 1901 George F. Cram & Co; Rand McNally Atlas 1897, New York City. 1901 Map still shows Hudson RR depot. Roess and Sansone 2013, pp. 100-112.

⁵² Burrows and Wallace 1998, pp. 1057-1058

⁵³ 1880 New-York City Guide Map by D.A. Edsal shows "Car and Stage Lines," referring to horse-drawn cars on rails: Broadway and University Place Line running down Greene Street north-south, Avenue C line has branches running East-West on Prince and Houston. Electric trolleys began to replace horse-drawn streetcars in the 1890s. The first subway lines opened in 1904. (Roess and Sansone 2013)

⁵⁴ Pratt (1911, pp. 120-123) did a survey that found 26 percent of male workers and 39 percent of female workers in Manhattan below 14th Street walked to work; the remainder took streetcars. He found (pp. 139- 141) that the percentage walking to work was higher among workers who were Russian Jews (male 44 percent and female 61 percent) and Italians (male 55 percent and female 75 percent)

⁵⁵ Filipetti 1925, p. 63

⁵⁶ "The New Mercantile District." Real Estate Record and Builders Guide 46 (October1890): 1-54.

⁵⁷ Gayle, Margot (1983) and Burrows and Wallace (1999) p. 878

⁵⁸ "The New Mercantile District." *Real Estate Record and Builders Guide (1890)*, p.24.

⁵⁹ Real Estate Record and Builders Guide

⁶⁰ Ibid.

⁶¹ Filipetti 1925, p. 23 shows a similar map shift from 1900 to 1922 for wholesale fur establishments, which had also been represented on our block.

⁶² Pratt 1911

⁶³ Roess and Sansone (2013), p. 167

⁶⁴ A picture of Packing Box City in 1933 is available in the online appendix to this paper. “Shacktown Pulls Through the Winter: The Unemployed in Their Shanty Villages Do the Best They Can With Little and Hold Their Heads High,” *The New York Times*, March 26, 1933.

<http://query.nytimes.com/mem/archive/pdf?res=F00C1FFE3D5E1A7A93C4AB1788D85F478385F9>

⁶⁵ Ballon 2007.

⁶⁶ Ibid.

⁶⁷ NYPL archives

⁶⁸ Ballon (2007)

⁶⁹ Jacobs 1961

⁷⁰ Flint 2009

⁷¹ A Columbia University Professor named Chester Rapkin in a 1963 report on the neighborhood had included a photograph, dated 1962, which reads: “Artist in resident on the fourth floor. Behind this inauspicious exterior a man of creativity and taste has transformed bleak, undifferentiated space into a graceful atmosphere for working and living.” Landmarks Preservation Commission 1973, p. 8

⁷² Abstract Expressionism, Heilbrunn Timeline of Art History, The Metropolitan Museum of Art, New York,

http://www.metmuseum.org/toah/hd/abex/hd_abex.htm

⁷³ Gayle (1983)

⁷⁴ For the story of artists and galleries in Soho, see also Kostelanetz (2003) and Simpson (1981)

⁷⁵ http://www.craigslist.com/article/20140310/REAL_ESTATE/140319988/greene-street-turns-to-gold-with-potential-new-tenant

⁷⁶ <http://www.bloomberg.com/news/2014-03-13/google-searches-for-space-in-nyc-s-soho-for-retail-store.html>