APPETITE FOR BEEF: 
THE QUANTITY AND QUALITY OF NEW YORK CITY’S MEAT SUPPLY, 1790-1860

Economic History Workshop, Yale University
May 9 2011

Draft version.
Please do not cite, distribute, or reproduce without the permission of the author!

Gergely Baics*†

Abstract
This paper provides new insights concerning urban meat consumption in early 19th century America through a case-study of New York City, focusing on three problems: quantity, quality and inequality. First, the paper introduces new data for the three decades between 1790 and 1818, showing that New Yorkers enjoyed historically high levels of meat consumption in this period. Second, complementing the findings of other scholars who suggested that average per capita meat consumption declined from the mid-1830s, a wide range of evidence is presented to make the case that this negative trend was not triggered, but exacerbated by the recession of 1837/43. Third, the paper explores how New York’s shift from a tightly regulated public market system to a deregulated model of provisioning affected the quality of the city’s meat supplies. Even as increasingly deregulated food markets made it easier for residents to buy provisions near to their homes, the price to be paid for greater convenience was the likely deterioration of the quality of fresh meat supplies. Lastly, the paper documents the process by which, in a rapidly growing immigrant metropolis, social inequalities in access to food became intimately tied to intensifying residential segregation based on class and ethnicity.

* Barnard College; Email: gbaics@barnard.edu
† I am most thankful to my mentors, Joel Mokyr and Josef Barton at Northwestern University. Parts of this research have been discussed at various forums, including the Urban History Association and the Social Science History Association conferences; the Urban Studies Colloquium at the University of Pennsylvania; the Economic History Workshop at the London School of Economics; the European University Institute; and the Columbia University Economic History Seminar. I am thankful for all comments received at these forums.
Introduction: The Antebellum Puzzle

Anthropometric history has opened an intriguing new chapter in the standard of living debate. The term Antebellum puzzle refers to the three decades prior to the Civil War characterized by the perplexing combination of rapid economic growth and growing per capita income on the one hand, and deteriorating biological standard of living, in particular, declining physical stature and rising mortality, on the other.¹

Scholars have proposed two distinct lines of explanation for declining body heights: deteriorating diets and worsening disease environments. The nutritional thesis asserts that the amount of protein consumed in infancy, childhood and adolescence has a positive impact on adult physical stature.² In his original paper, John Komlos set the direction of the debate by making the case for declining meat consumption. He concluded that “after 1839, average calorie and protein intake declined and did not reach its earlier level again until the 1870s.”³ Later, he included other factors into this explanatory framework.⁴ He argued that rising income inequality must have decreased meat consumption levels disproportionately for lower income groups. He also pointed to two recessionary periods in the United States (1837/43 and 1848/55), which negatively impacted household food budgets. Moreover, he emphasized that city dwellers paid a premium for having to import food from ever greater distances.⁵ As the urban population grew 5% per annum between 1800 and 1860, the urban variable increasingly mattered.

For data, Komlos turned to production figures from the federal censuses, which left the period prior to 1839 unaccounted for.⁶ Michael Haines addressed this problem by using the New York State census, which provides production figures from 1825.⁷ His data confirm Komlos’s thesis, suggesting declining meat consumption already between 1825 and 1835. But was the decline part of a longer trend, or did it begin in the 1830s? There are no data prior to Haines’s to make either case. If the decline occurred from a higher equilibrium, the explanation of dietary transition is more robust. But if the decline was part of a longer trend, it remains to be explained why body height deteriorated only for birth cohorts from around 1830.

Haines also reoriented the discussion to address both nutrition and mortality. Using new data, Haines, Craig and Weiss found that a county’s share of urban population and its access to transportation networks resulted in higher mortality rates for residents.⁸ Looking at physical stature, they turned to the data on white Union Army recruits.⁹ They found that both the quantity and the variety of the food supply mattered. Growing up in a county with a net surplus of protein...
increased adult body height, whereas greater agricultural specialization, that is less diversified local diet, had a slightly negative impact. Moreover, the data provide strong evidence for the importance of deteriorating disease environments. Spending infancy and childhood in a county with higher death rates resulted in lower adult body height, and so did growing up in a more urbanized county or in a county with better transportation.\textsuperscript{10} The Antebellum puzzle, the authors conclude, “resulted from a complex set of factors, including urbanization, increased population mobility, worsening mortality conditions, greater contact via improved transport infrastructure, and deteriorating nutrition.”\textsuperscript{11}

Placing emphasis on the disease environment puts a premium on urbanization in explaining the phenomenon. That population concentration adversely effected life expectancy until public health reforms reversed this trend from the latter half of the 19\textsuperscript{th} century is well-established in the literature.\textsuperscript{12} But a closer look at cities provides more to think about the nutritional thesis. Cities by definition rely on the countryside to sustain residents. When overall meat supply falls, city dwellers also suffer, probably even more than those living in rural areas. The reverse is also true: if there is plenty of livestock available, city dwellers tend to eat better. The problem with either logic is that urban provisioning is a mediated process, whereby sufficient supply is a necessary, but insufficient condition. It is not enough to transport the livestock into the city, but it also matters that a series of mediating institutions function properly so that the animals be slaughtered, processed and retailed to residents. It is conceivable that even if there was sufficient supply, a poorly managed urban infrastructure would fail to ensure the proper provisioning of residents.

A closer look at the provisioning infrastructure and the butchering trade of America’s first metropolis in the first half of the long 19\textsuperscript{th} century allows for a better understanding of the process by which livestock landed on the consumer’s plate as meat. In particular, the quantity and quality of the urban meat supply are of major concerns. Declining quantity has been the focus of the standard of living debate: this paper directly addresses this issue by presenting new consumption estimates for the early Republican and Antebellum periods. The problem of quality has attracted far less research. One contribution this paper intends to make is to shed new light onto this more elusive subject by studying the core institutions of urban provisioning.\textsuperscript{13} Finally, the paper examines how intensifying residential segregation, prevalent in New York City and other major American urban centers, affected unequal access to food supplies among residents.
(1) **Quantity: 1790-1818**

The first objective of this paper is to establish how much meat on average New Yorkers consumed during the early Republican period. What makes the estimate possible is new data based on two different sets of archival records, both generated by the municipal government. These sources resulted from one specific condition of urban food provisioning in early America, which was codified by the market laws. In New York City, as in most American cities, the City Council limited the retail of the four principal categories of fresh meat—beef, veal, lamb and mutton, and pork—to licensed market butchers at the city’s public markets. The underlying intent of this crucial clause of the market laws—commonly referred to as the “market monopoly of meat”—was to maintain strict municipal oversight of the most important and perishable component of the urban food supply, chiefly for reasons of public health. Market butchers, in return for their trade privilege, as well as to finance the upkeep and expansion of the municipal infrastructure of provisioning for a rapidly growing city, paid excise taxes on the different varieties of fresh meat sold.

The highly restricted meat trade, in turn, concentrated the sale of all fresh provisions, including fish and shellfish, vegetables and fruits, at the city’s markets. Customarily, market vendors, selling fresh food, and grocers, selling dry food, complemented each other. From around the second quarter of the 19th century, however, market vendors faced mounting competition from informal retailers. By the mid-1830s, because the municipal government failed to expand the market infrastructure to keep up with accelerated spatial and population growth, the overstretched market system was ever more frequently circumvented by a burgeoning informal economy, in which meat and all other provisions were sold by grocers at retail out of stores or from homes, or by peddlers on the street. Eventually, the Common Council, New York City’s legislative body, broke with centuries of tradition, and deregulated the market system in 1843.

To estimate the quantity of fresh red meat consumed by New Yorkers in the early 19th century, two hitherto unused sets of sources have been consulted. First, Market Clerks were required to register and collect fees on each and every cow, calf, sheep and hog processed at their respective marketplaces. They then submitted these returns monthly to the City Comptroller; a substantial amount of the 1816 and 1818 returns has survived for the city’s three principal markets of Fly, Washington, and Catharine. Additionally, the butcher-turned-historian Thomas
F. De Voe’s published works—*The Market Book* (1862) and *The Market Assistant* (1867)— along with his manuscript records, contain complementary sheets of the returns for the missing months. By combining these two sources, one can make reliable estimates of the total number of cattle, calves, sheep and hogs slaughtered in New York City in 1816 and 1818.16

Second, the Proceedings of the Common Council document the amount of market fees collected from the butchers between 1790 and 1818. Given that fees were collected in the form of excise taxes on the amount of meat sold, they can be used to estimate the actual volume of meat sales for most of the years during this period. Overall, combining these two sets of data makes it possible for the first time to measure per capita red meat consumption in a major American city of the early Republic—and not only for one year, but for nearly three decades. The data have two significant limitations. The City Council collected revenue only on the sale of butcher’s meats. All other meats, including poultry, fowl and game, which were sold by farmers and hucksters at the city’s markets, as well as processed and preserved meats, such as ham, sausage, lard, salted pork and beef, smoked beef, or corned beef, which were retailed by the city’s grocers, fell outside the remit of municipal taxation. Any attempt to quantify per capita meat consumption is therefore necessarily limited to red meat, leaving a substantial portion of the urban meat supply unaccounted for.17

Based on the Market Clerk’s monthly returns, complemented by De Voe’s records, the per capita red meat consumption estimates are as follows: in the late 1810s, New Yorkers on average ate between 85.9 to 92.1 pounds of beef, 16.9 to 19.6 pounds of veal, 28.6 to 34.1 pounds of lamb and mutton, and 10.7 to 13.5 pounds of pork—for all categories, the year of 1816 representing the upper, while the year of 1818 the lower bound. On the whole, annual per capita fresh red meat consumption reached 159.3 pounds in 1816 and 142 pounds in 1818.18

Are these figures realistic? Roger Horowitz offers precise estimates of urban meat consumption levels for the 20th century. In 1909, per capita meat consumption ranged from an average of 136.1 pounds for lower-income families, to 163.7 pounds for middle, and to 201.6 pounds for higher-income families. By 1942, the Depression pushed total meat consumption for the respective income groups down to 107.5, 143.6, and 166.1 pounds. Yet by 1965, per capita meat consumption reached record levels with figures as high as 205.2 pounds for lower, 219.4 pounds for middle, and 230.2 pounds for higher income families. At the same time, per capita beef consumption stood at 81.5 pounds in 1909, dropped to 69.4 pounds by 1942, to reach a
staggering 104.7 pounds by 1965. In comparison, the market data indicate very high, but by no means unrealistic levels of meat consumption for the early 19th century.

The years 1816 and 1818, however, are only two cases in point; further evidence is needed to extend the chronology. For each year between 1790 and 1800, and for some of the years between 1801 and 1816, the Common Council’s Proceedings report the fees that Market Clerks collected on the total amount of meat sold. Given that the respective fees for the four kinds of butcher’s meats—beef, veal, lamb and mutton, and pork—remained largely unchanged, and that the market laws limited the sale of fresh meat to the public markets, the market fees reflect relative levels of meat consumption over the period.

Figure 1 compares the growth of New York City’s population to that of the market fees between 1790 and 1818. It clearly shows how market fees increased at about the same rate as did the population until 1807. For the subsequent decade, the data are more sporadic. Yet it is evident that the war of 1812 caused a temporary collapse in meat sales in 1813. De Voe himself noted that the prices of provisions became very high at the commencement of the war, and continued so for a few years, resulting in notable scarcities in supplies. Food consumption was not immune to other external shocks either. In 1798, market fees dropped by a remarkable 14.2% compared to the year before, as the most devastating yellow fever wiped out nearly 4% of the city’s population, and sent thousands into the countryside. The decline from 1806 to 1807 corresponds to the 1807 Embargo Act. New York City’s meat supplies derived from regional sources, and thus the embargo did not directly hurt the meat trade. But for a commercial city, the interruption of foreign trade presented a severe economic setback, which in turn, manifested in a 4.2% decline in the volume of meat sales.
Despite setbacks caused by yellow fever, the embargo of 1807, or the war of 1812, the market fee data provide strong evidence for the steady growth of the city’s meat supplies between 1790 and 1818. The reliability of the series is confirmed by its responsiveness to external shocks. Moreover, fees calculated from the original market returns of 1816 and 1818—which were based on actual animal counts—, fit remarkably well into the dataset. Earlier, I used the original market returns to calculate per capita meat consumption rates for 1816 and 1818. Given the reliability of the market fee data, it is possible to convert fees into meat consumption figures for the two-and-a-half decades prior to 1816.28

Table 1: Per capita butcher’s meat consumption in NYC (lbs), 1790-181829

<table>
<thead>
<tr>
<th>Years</th>
<th>Beef</th>
<th>Veal</th>
<th>Lamb &amp; mutton</th>
<th>Pork</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1790</td>
<td>76.5</td>
<td>16.3</td>
<td>28.3</td>
<td>11.2</td>
<td>132.3</td>
</tr>
<tr>
<td>1795</td>
<td>96.3</td>
<td>20.5</td>
<td>35.7</td>
<td>14.1</td>
<td>166.5</td>
</tr>
<tr>
<td>1800</td>
<td>89.5</td>
<td>19.0</td>
<td>33.1</td>
<td>13.1</td>
<td>154.7</td>
</tr>
<tr>
<td>1805</td>
<td>93.2</td>
<td>19.8</td>
<td>34.5</td>
<td>13.6</td>
<td>161.2</td>
</tr>
<tr>
<td>1813</td>
<td>76.1</td>
<td>16.2</td>
<td>28.2</td>
<td>11.1</td>
<td>131.6</td>
</tr>
<tr>
<td>1816</td>
<td>92.1</td>
<td>19.6</td>
<td>34.1</td>
<td>13.5</td>
<td>159.3</td>
</tr>
<tr>
<td>1818</td>
<td>85.9</td>
<td>16.9</td>
<td>28.6</td>
<td>10.7</td>
<td>142.0</td>
</tr>
</tbody>
</table>

Table 1 summarizes per capita meat consumption estimates for New York between 1790 and 1818. Even if the data are far from perfect, they provide new insights into urban meat consumption levels for an undocumented period. The figures show that per capita consumption of fresh red meat increased from 132.3 pounds in 1790 to rates as high as 154.7 to 166.5 pounds between 1795 and 1816—excluding the war year of 1813, when it dropped to 131.6 pounds. The corresponding rates of beef consumption rose from 76.5 pounds in 1790 to 89.5 to 96.3 pounds between 1795 and 1816. The 1818 figures indicate a notable decline in per capita red meat consumption compared to two years earlier. However, there is good evidence that the 1818 data are likely to slightly underestimate the overall number of animals butchered in New York, in which case the 1818 rates were probably much closer to those of 1816 than the table suggests.30

How do these figures measure up to similar estimates for the period? Table 2 presents comparable data on average meat consumption in the Northeast during the latter half of the 18th and early 19th centuries. The best estimates for the Colonial and early Republican periods come from Sarah F. McMahon’s meticulous studies of a large sample of wills from rural Middlesex County in Massachusetts.31 She finds that the yearly meat allowance of widows grew from 120.8 pounds in the early 18th century, to 168.2 pounds by the mid-century, to 183.5 pounds by
the Revolutionary era, then it slightly decreased to 178 pounds during the last two decades of the century, to reach an impressive 201.8 pounds by the early 19th century.\textsuperscript{32} James T. Lemon’s calculations for Southeast Pennsylvania arrive at a lower widow rate of 150 pounds of meat for the second half of the 18th century.\textsuperscript{33} In addition, Billy Smith’s reconstruction of a Philadelphia laborer’s diet for 1772 produces an overall meat consumption level of 174.5 pounds.\textsuperscript{34}

Table 2: Estimated meat consumption in North America (lbs), 1740-1830

<table>
<thead>
<tr>
<th>Period</th>
<th>Widow rate</th>
<th>Widow rate</th>
<th>Laborer</th>
<th>Per capita</th>
<th>Years</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>All meats</td>
<td>SE PA</td>
<td>Philadelphia</td>
<td>NYC</td>
<td></td>
</tr>
<tr>
<td>All meats</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Middlesex Co.</td>
<td>168.2</td>
<td>150.0</td>
<td>174.5</td>
<td></td>
<td>1772</td>
</tr>
<tr>
<td>1740-59</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1760-78</td>
<td>183.5</td>
<td></td>
<td></td>
<td></td>
<td>1790</td>
</tr>
<tr>
<td>1781-90</td>
<td>178.0</td>
<td></td>
<td></td>
<td></td>
<td>1795</td>
</tr>
<tr>
<td>1791-99</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1800</td>
</tr>
<tr>
<td>1800</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1805</td>
</tr>
<tr>
<td>1805</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1813</td>
</tr>
<tr>
<td>1808-15</td>
<td>201.8</td>
<td></td>
<td></td>
<td></td>
<td>1816</td>
</tr>
<tr>
<td>1816-17</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1818</td>
</tr>
<tr>
<td>1818-30</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Even if widow rates are not the same as average per capita consumption, they provide a good idea of societal expectations of what constituted a reasonable supply of meat at any given time.\textsuperscript{35} And the New York City average of about 160.4 pounds of fresh butcher’s meat between 1795 and 1816 compares well with McMahon’s estimate of between 178 and 201.8 pounds of meat allowance for the late 18th and early 19th centuries. It is in fact surprising that the New York City figures are only slightly lower, given that they exclude preserved meats as well as poultry, fowl and game. If, on average, New Yorkers ate about 160 pounds of fresh red meat, there had to be plenty more on their dinner table once these categories are also accounted for, adding up to a total per capita meat consumption level well above McMahon’s rural averages.\textsuperscript{36}

Moreover, the data underline one profound difference between urban and rural diets. Horowitz notes that the widespread consumption of fresh meat, beef in particular, was an urban privilege.\textsuperscript{37} Indeed, whereas almost all of McMahon’s estimates derive from preserved meats, New Yorkers first and foremost ate fresh meat. Only in cities was demand sufficient and constant enough to sustain large supplies of slaughtered and retailed beef for immediate consumption. The primacy of fresh meat also contributed to another distinctive feature of the urban diet: city dwellers experienced more marked seasonal variations in their meat consumption.
than did rural dwellers. Looking more closely at the Market Clerk’s returns from 1816, figure 2 presents monthly per capita consumption estimates for the four varieties of butcher meats. It shows that unlike beef, which was consumed all year around, veal, lamb and mutton, and pork were eaten only in their “proper seasons.” Moreover, the figure reveals that the supply of beef dominated the annual red meat cycle. Throughout the year, New Yorkers had an appetite for beef. They compromised their beef consumption when veal came into season over the spring and early summer. Once veal was gone, the beef diet was complemented by lamb and mutton during the summer months, whereas by the late fall and early winter, Market Clerks registered the highest sales of beef matched by a peak in the sale of pork. Overall, the average New Yorker could count on eating ten to sixteen pounds of fresh red meat at each month of the year. The urban standard of living, at least in so far as meat consumption was concerned, depended on these strong complementary seasonal cycles, which ensured a stable supply of fresh red meat through the different months of the year, and then from one year to the next.

Returning to annual aggregates, one also wonders how meat consumption in New York compared to those of other rapidly growing cities outside of the United States. Thanks to its highly centralized and closely monitored provisioning system, data concerning the number of animals slaughtered for sale in Paris are exceptionally good. Table 3 compares the New York City estimates to Armand Husson’s figures from his *Les consommations de Paris* (1875). Accordingly, during the late 18th and early 19th centuries, the per capita annual consumption of beef, veal, lamb and mutton were strikingly similar in the two metropolises—pork is treated as a separate category, as in Paris, it also included cured meats (*charcuterie*). At first reading then, the data raise doubts about the conventional wisdom that 19th century Americans consumed far
more meat, in particular beef, than Europeans. A closer look, however, reveals that even as Parisian meat consumption rates were remarkably close to those of New York, the discrepancy between urban and rural diets was far greater in France than in the United States. Whereas Parisians ate three to four times as much meat as the average French citizen, rural New England widow rates were not all that different—at least in so far as quantity was concerned—from meat consumption levels in New York. Explaining the comparatively smaller inequality between urban and rural diets in North America presents an intriguing question for further research.

Table 3:
Per capita butcher’s meat consumption in New York City and Paris (lbs), 1781-1818

<table>
<thead>
<tr>
<th>Period</th>
<th>NYC</th>
<th>P</th>
<th>NYC</th>
<th>P</th>
<th>NYC</th>
<th>P</th>
<th>NYC</th>
<th>P</th>
<th>NYC</th>
<th>P</th>
<th>FR</th>
</tr>
</thead>
<tbody>
<tr>
<td>1786-88 &amp; 1790</td>
<td>1781-86</td>
<td>80.4</td>
<td>88.3</td>
<td>17.1</td>
<td>12.6</td>
<td>29.8</td>
<td>24.0</td>
<td>127.3</td>
<td>124.8</td>
<td>11.8</td>
<td>15.6</td>
</tr>
<tr>
<td>1799-1802 &amp; 1804-07</td>
<td>1799-1808</td>
<td>88.8</td>
<td>89</td>
<td>18.9</td>
<td>20.1</td>
<td>32.9</td>
<td>26.9</td>
<td>140.6</td>
<td>136.0</td>
<td>13.0</td>
<td>20.2</td>
</tr>
<tr>
<td>1816 &amp; 1818</td>
<td>1809-18</td>
<td>89.0</td>
<td>88.8</td>
<td>18.2</td>
<td>17.5</td>
<td>31.3</td>
<td>26.2</td>
<td>138.6</td>
<td>132.6</td>
<td>12.1</td>
<td>25.5</td>
</tr>
</tbody>
</table>

Overall, it is safe to conclude that New Yorkers, from the mid-1790s until the late 1810s, ate remarkably well for their own time and in comparison to later periods. They ate about as much meat as did better-off urban Americans in 1909, and only a little less—if at all—than the average urban American in the record year of 1965. More precisely, they consumed about 14% more beef than the average American in 1909, and about 11% less than the average American in 1965. The data also complement McMahon’s claim of progressively rising meat consumption levels. Compared to McMahon’s estimate of a 10% increase from the Revolutionary period to the early 19th century, the market fees suggest a more robust 19% increase between 1790 and the period between 1795 and 1818. The remarkable stability of the consumption rates between 1795 and 1816 provides strong evidence that after the Revolution, meat consumption gradually reached a very high equilibrium. Moreover, the data show that urban meat consumption levels, at least in the case of New York, were considerably higher than rural averages. In short, New Yorkers not only had the privilege of eating fresh meat, in particular beef, all year around, they also ate more of it than their rural counterparts who fed them.

This was no small feat, considering that over the three decades between 1790 and 1820, the city’s population nearly quadrupled from slightly below 33,000 to a little over 120,000 inhabitants. Besides, these were turbulent times, with frequent outbreaks of yellow fever,
economic setbacks, and a devastating war. It would be mistaken to assume that in so far as there was a sufficient supply of meat reaching the city, residents were by definition well provisioned. Importantly, the City Council committed the necessary resources to maintain and expand the market system. New markets were opened in new areas even as the city pushed incessantly northward. From a provisioning infrastructure dominated by the Fly Market in the 1790s, by the early 1810s a spatially well-allocated public market system gradually emerged, defined by three similarly large markets—Fly, Washington, and Catherine—in the center complemented by smaller area markets in the rapidly urbanizing northern wards (see maps 1-4). The spatial expansion of the market system ensured that residents walked more or less the same manageable distances for their provisioning trips over the three decades. In addition, the Council added more stalls at existing locations to meet growing demand. As a result, the scale and relative volume of trade of the individual markets closely mirrored the city’s shifting population densities.

The expansion of the market system refers to these joint processes of building new markets in urbanizing areas, while also adjusting the scale of existing markets to meet changing demand. Figure 3 calculates how many residents there were for each available butcher stall in the city between 1790 and 1820. In theory, there need not to be a one-to-one relationship between the number of stalls and how many customers they could supply. It is feasible that a butcher could expand his sales to many more customers. However, three structural obstacles limited the scale of the retail butcher’s trade. First and foremost, the distances New Yorkers were willing to walk on a daily basis constrained the pool of customers. Second, lacking proper refrigeration, a butcher could cut up only about as much meat as he expected to sell on any given day. And even if he could overcome some of these constraints by hiring more apprentices, the relatively small—and prescribed—size of his stall posed further limitations on how much meat could be handled. In so far as the retail butcher’s trade remained largely unchanged, there was an upper bound to how many customers he could supply, and hence increasing demand had to be met by licensing more butchers that is by adding new stalls to the market system.

Figure 3 confirms this interpretation. It is revealing that the number of residents per butcher stall increased very modestly over the period. Whereas in the 1790s, there were on average 433 residents for each stall, during the first decade of the 19th century, this ratio increased to 488, and then to 498 for the 1810s. In other words, even as the city’s population increased nearly fourfold, the average butcher in the 1810s retailed meat to a clientele only about
Maps 1-4: Expansion of the market system, 1792-1816
15% larger than his predecessor one generation earlier. Greater demand was not met by more efficient retail practices, but by more butchers entering the trade, which, given the market laws, depended on the Council’s commitment to adding new markets and stalls to the public market infrastructure.45

All in all, New Yorkers were well provisioned with meat only in part because the city could rely on sufficiently expanding supplies. This was a necessary, but not a sufficient condition. It also mattered that the Common Council maintained and expanded the market-system at a sufficient rate to ensure the proper distribution of meat to residents. Despite having lived through a turbulent time with numerous external shocks and a remarkable rate of population growth that made their city the largest of the Americas, New Yorkers, these new data suggest, were well supplied with meat. This should be regarded as a remarkable success.

(2) Quantity: 1821-1860

Moving to the second quarter of the 19th century, the data are far more limited to arrive at similarly good estimates concerning Gotham’s meat supplies. This is most unfortunate, given that much of the Antebellum puzzle focuses on this period, when a notable decrease in adult male body heights—for birth cohorts between 1830 and 1860—indicates falling rates of per capita protein consumption. Haines’s New York State census figures date the beginning of the decline in per capita meat production before 1835, while the national census used by Komlos picks up on this already unfolding process after 1839.46 It is probable that New Yorkers, just like the rest of their state or the nation, experienced a similar negative trend during the second quarter of the 19th century. In what follows, a variety of evidence is presented to make suggestive claims about changes in per capita meat consumption in New York City after 1820.
The main problem with the data is that after 1820, the Council no longer collected market fees based on the amount of butcher’s meats sold, but instead collected annual rents for market stalls on a weekly basis from the city’s butchers, and daily fees from all the other vendors, including fishermen, farmers and hucksters. In other words, after 1820 the city’s market revenues no longer reflected meat consumption levels. Fortunately, the “market monopoly of meat” ensured that officials had access to some information concerning the city’s meat supplies. There are data available regarding the number of beef cattle slaughtered in New York City between 1836 and 1838, while for 1842 the City Comptroller arrived at a rounded figure based on the “best data” he was able to collect. In addition, the Market Committee noted that between 1832 and 1835 “the number of beef cattle slaughtered in the city went on gradually and regularly increasing;” unfortunately, the actual figures were not reported. Overall, the sporadic data available are most probably less reliable than the Market Clerk’s monthly returns for 1816. One reason is that New York City did not build public abattoirs like Paris, nor had access to a single livestock market and slaughterhouse like Boston’s Brighton Market. To complement the fragmented data for New York, table 4 compares these figures to the more consistent observations from Boston’s Brighton Market.

Table 4:
Beef cattle slaughtered in New York City and Boston, 1831-1850

<table>
<thead>
<tr>
<th>Year</th>
<th>Beef, nr. (NYC) Total</th>
<th>Beef, lbs (NYC) Per capita</th>
<th>Beef, nr. (Boston) Total</th>
<th>Beef, lbs (Boston) Per capita</th>
</tr>
</thead>
<tbody>
<tr>
<td>1831</td>
<td>33,922</td>
<td>240.9</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1832</td>
<td>40,807</td>
<td>280.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1833</td>
<td>49,180</td>
<td>327.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1834</td>
<td>36,382</td>
<td>234.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1835</td>
<td>51,096</td>
<td>319.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1836</td>
<td>54,531</td>
<td>88.2</td>
<td>38,504</td>
<td>233.2</td>
</tr>
<tr>
<td>1837</td>
<td>44,495</td>
<td>69.9</td>
<td>32,644</td>
<td>191.5</td>
</tr>
<tr>
<td>1838</td>
<td>40,877</td>
<td>62.4</td>
<td>25,830</td>
<td>146.8</td>
</tr>
<tr>
<td>1839</td>
<td>23,624</td>
<td>130.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1840</td>
<td>34,160</td>
<td>182.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1841</td>
<td>36,607</td>
<td>182.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1842</td>
<td>52,000</td>
<td>69.9</td>
<td>32,970</td>
<td>153.9</td>
</tr>
<tr>
<td>1843</td>
<td>37,340</td>
<td>164.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1844</td>
<td>37,610</td>
<td>156.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1845</td>
<td>48,910</td>
<td>192.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1846</td>
<td>38,670</td>
<td>146.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1847</td>
<td>43,425</td>
<td>159.0</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1848</td>
<td>40,784</td>
<td>144.1</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1849</td>
<td>46,465</td>
<td>158.3</td>
<td></td>
<td></td>
</tr>
<tr>
<td>1850</td>
<td>42,830</td>
<td>140.8</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
As Brighton Market did not exclusively supply meat for Boston, but also served the city’s greater region, per capita figures for Boston were about three times higher than for New York. The point of using the Brighton Market data is not to compare absolute consumption figures, but rather to trace trends over time. As table 6 shows, the number of beef cattle slaughtered at Brighton Market gradually increased during the first half of the 1830s, then decreased notably during the second half, to recover by the beginning of the 1840s. The New York figures between 1836 and 1842 follow the same course, indicating sharply declining meat consumption in the late 1830s. Two caveats are in order. First, a sharp drop occurs in the Brighton Market series in 1834, for which there is no readily available explanation. Second, the decline in the Boston series already began by 1836, which suggests a different trend than in New York, where city officials reported in 1836 that “the number of beef cattle slaughtered in the city went on gradually and regularly increasing.”

How to interpret these trends? One possibility is that the decline in urban beef consumption during the second half of the 1830s was the result of worsening supply conditions. In fact, Haines’s production figures obtained from the New York State censuses testify to the diminishing supply of beef cattle between 1835 and 1840. At the same time, it was probably no accident that the sharp decline in urban beef consumption coincided with the recession of 1837/43. The recession most probably required households in New York and Boston—and probably in cities across the country—to cut back on their purchases of meat. Komlos in fact did suspect such a relationship, and suggested that “the decline in heights of the second half of the 1830s may very well have been caused, or at least exacerbated, by the recession of 1837.” The New York data do point to the unfolding of a recessionary cycle: per capita beef consumption stood at 88.2 pounds in 1836, then it dropped to 69.9 pounds in 1837, at the beginning of the recession, declined further to 62.4 pounds in the following year, and mildly recovered to 69.9 pounds by 1842. In the case of Boston, however, the same decline began one year earlier, indicating that the recession did not trigger, but rather exacerbated an already unfolding negative trend.

One important question is whether or not the recession of 1837/43, which was followed by a period of economic recovery in the middle of the 1840s, was complemented by a similar recovery or a lower equilibrium in meat consumption. Looking back at table 4, the Boston data point to the second outcome. Similarly, Haines’s New York State census figures indicate a
brief recovery in the supply of beef between 1840 and 1845, followed by a consistently declining
trend from 1845 until the end of the Civil War. Komlos’s estimates based on the national
censuses also suggest progressively declining rates of per capita meat consumption from 1839
until the 1870s. While there is no direct evidence available, it is reasonable to suggest that
New York City should have not behaved much differently from Boston, or the rest of New York
State, or the nation.

An alternative approach is to look at prices. The most widely used price indexes for the
period come from Philadelphia, but similar data are also available for New York City and
Boston. Figure 4 compares wholesale prices indexes for beef in New York, Philadelphia and
Boston and for all meats and meat products in Philadelphia as computed by Bezanson, et al for
1820 and 1860. Price quotations refer to barreled beef, but it is unlikely that the price of fresh
meat would have followed different trends. The figures show that between 1820 and 1860
wholesale prices moved closely together across the three cities. This is not surprising, after all
the price of meat largely depended on supply conditions, and all three cities are located in the
Northeastern region.

The rising price of meat from the mid-1830s, but especially between 1836 and 1839
makes the case for a decline in supply. It strongly indicates that the recession of 1837/43 did not
trigger the negative trend in meat consumption. This interpretation is confirmed by the Market
Committee, who when addressing in December of 1839 the causes of the “late high prices of
beef,” refuted widespread claims that New York’s restrictive trade in fresh meat was at fault, and
pointed to the “the scarcity of the supply” as the main reason. Beginning in 1840, however,
meat prices fell sharply and consistently to reach their bottom by the middle of the decade. By this later stage the recession cut deeply into urban households’ living standards, pushing demand for meat to unprecedented lows. Later in the 1840s, meat prices recovered to pre-recessionary levels, while over the first half of the 1850s, they continued to increase, which again indicates declining supply. One brief interruption to this steady rise in meat prices occurred from around 1848 through the early 1850s, coinciding with the recessionary period between 1848 and 1855. Overall, the wholesale price indexes from New York City and Philadelphia complement the earlier evidence of the Brighton Market data to suggest that following the recession, urban meat consumption did not fully recover, but shifted to a lower equilibrium. They also indicate that this declining trend from the mid-1830s was driven chiefly by worsening supply conditions, which was further exacerbated by the two recessions.

At the other end of the urban food system, operated Gotham’s infrastructure of provisioning. It makes sense to compare the above observations about the city’s meat supply to more systematic data concerning the public markets. As noted earlier, after 1821, the Council collected annual rents for stalls from licensed butchers, and daily fees from all other vendors. Butcher rents were fixed by the Market Committee according to the rental value associated with the stalls. In addition, between 1830 and 1835, the Council charged premiums for market stalls that opened up for occupancy through a competitive bidding process. Market fees reflected the number of market vendors at any given day, and hence corresponded more directly to the volume of market trade. While neither rents nor fees can be used to estimate how much meat or other fresh foodstuff was sold through the public market system, the revenue data indirectly reveal the changing fortunes of the city’s market vendors.

Figure 5 compares New York City’s population growth to its market revenues—both rents and fees—between 1823 and 1849 that is the period of transition from highly regulated to deregulated food markets. The analysis begins in 1823, since it took some time before the new revenue system became established. In the 1820s, both rents and fees increased at about the same rate as did the population, suggesting that the city’s food supply kept pace with urban growth. Then in 1832, market fees fell suddenly by 16.8% as a result of the first cholera epidemic that killed 1.5% of the population. Like yellow fever earlier, in the second quarter of the 19th century, cholera presented a major external shock, creating a negative feedback in food
From the 1830s on, market fees lagged behind population growth, indicating that an ever growing share of the public markets’ business migrated to private stores.

Looking at butcher rents complements this picture. Market rents grew gradually and progressively until 1834. Their dynamic growth in the last three years reflects the large number of stalls that were successfully auctioned out for high premiums. Butchers must have felt optimistic about their business prospects to have been willing to pay the exorbitant prices the Council charged for newly available stalls. Then, between 1835 and 1842, revenues from butcher rents significantly declined—the unique increase in 1838, in the middle of the recession, reflects the City’s more forceful efforts in that year to collect regular and late rents. In 1843, rents recovered from their bottom, but only to stagnate for the rest of the decade. The data point to three conclusions. First, they confirm the earlier point that urban meat consumption was already experiencing troubles before the recession hit in 1837. Second, the fact that from the mid-1830s butchers saw their businesses decline suggests that widespread complaints about growing violations of the market laws were well-founded. From around the early 1830s, butchers faced mounting competition from informal food vendors. And finally, the fact that after
the recovery in 1843, rents stagnated for the rest of the decade demonstrates how deregulation led to the public markets’ loss of their dominant role in provisioning fresh meat to New Yorkers. After deregulation, most of the expansion in the meat retail business occurred in private butcher shops.

Figure 6 supports this analysis.65 The number of butcher stalls increased steadily between 1821 and 1842, yet at a much lower rate than did the city’s population. Accordingly, the number of residents per stall rose from 576 in 1821 to 848 in 1842.66 This was, no doubt, a significant increase, which was partly offset by the licensing of butcher shops in the city’s northern fringes, and the ever more widespread practice of retailing fresh meat informally. Butchers also began to use refrigerator boxes, which helped improve the efficiency and scale of their operations. At any rate, the rapid growth in the number of residents per market stall after 1842 from 848 to 1,440 by 1850 exhibits the decline of the municipal market system, and the complementary expansion of the business of private butcher shops. By 1845 no less than 410 official meat shops operated across the city, and their numbers increased to 531 by 1850.67

Lastly, the spatial analysis substantiates this interpretation by showing how the development of the market system from the late 1820s gradually fell behind urban growth.68 The maps (5-10) reveal that the relative volume of trade of the individual markets—measured in terms of their number of butcher stalls, butcher rents, and market fees—corresponded less and less to the distribution of the city’s population.69 As a result, by the late 1830s the city’s public market infrastructure became spatially increasingly misallocated.70 Looking more closely at the maps, two distinctive spatial patterns emerged from around the mid-1830s. First, north of Fourteenth Street, New Yorkers had no public markets to rely on; here residents purchased their daily provisions entirely at butcher stores, groceries and informal vendors. Those living in the city’s central and southern districts had access to public markets, while also relying on a range of licensed and informal private retailers.71 Second, the scale and quality of the municipal markets—as measured by the revenues they generated and the average rental value of their stalls—progressively declined moving from west to east. Paradoxically, markets were smaller and commended less rent per retail space precisely in those areas which became the most densely populated. Table 5 summarizes the results: whereas in 1818 there was a strong correlation between ward level population densities and the relative hierarchy of the public markets, through the 1830s and 1840s this spatial correlation gradually declined to reach null by the 1850s.
Maps 5-8: Expansion of the market system, 1818-1855
It is time to draw some conclusions based on the wide range of evidence presented concerning New York City’s meat supply between 1790 and 1860. First, the market returns and market fee data offer robust evidence that New Yorkers were well provisioned with meat between 1790 and 1818. By the 1790s, per capita meat consumption in New York reached levels that compare favorably to the highest recorded figures in America during the 20th century.
Falling meat consumption rates over the second and third quarters of the 19th century represented a negative trend compared to this very high equilibrium.

Second, the data underline that urban meat consumption had a few distinctive qualities. American city dwellers ate first and foremost fresh red meat, beef in particular, which set them apart from their rural counterparts. They also ate more meat than those living in the countryside. At the same time, the urban supply of food was very sensitive to external shocks. The 1798 yellow fever and the 1832 cholera epidemic resulted in dramatic collapses in meat consumption levels. Food consumption may have dropped as thousands escaped the city, while an epidemic could also have disrupted the normal functioning of the provisioning infrastructure, or caused severe interruptions in the city’s supply chains. Historians have appreciated the precariousness of urban life in the face of disease. Yet understanding how the toll of epidemics was exacerbated by interruptions in the city’s provisioning system deserves more attention. Besides, city dwellers also disproportionately suffered at times of political crises. The embargo of 1807, and especially the war of 1812, caused major setbacks in urban food consumption. City dwellers, who did not grow their own food but relied on supplies from the hinterlands, must have felt these hardships more than rural residents.

Third, the data confirm that the most consequential external shock for urban food consumption in the Antebellum period was the recession of 1837/43. Komlos posited a link between the recession and declining protein consumption, assuming that as real wages fell, so did households reduce their expenditures on meat. The data bear out this relationship for New York City, New York State and Boston. The evidence is strong that even though urban meat consumption started to decline prior to the recession, pointing to worsening supply conditions, this negative trend was considerably exacerbated by the recession of 1837/43.

This leads to the fourth problem. Did per capita meat consumption in New York City recover to the earlier high equilibrium, or settle at lower rates following the recession? While there is no direct documentation to make either case, all indirect evidence points to the second outcome. Consumption figures for Boston suggest a lower equilibrium, while production data from New York State and the federal censuses indicate a decline in the supply of beef until well past the Civil War. Wholesale prices from New York City, Philadelphia and Boston corroborate this. Even if after the recession meat prices temporally fell, from the late 1840s through the 1850s, they rose sharply again. On the whole, it seems safe to suggest that New Yorkers
consumed less meat from around the mid-1830s until past the Civil War than between 1790 and 1818. How much less exactly that was, remains an open question.

Finally, data on annual stall counts complemented by spatial analysis revealed that from around the late 1820s, the expansion of the public market system lagged behind urban growth. More importantly, the market infrastructure became less responsive to the city’s constantly shifting population densities. Whereas in 1818 there was a very strong correlation between the relative volume of trade of the individual markets and the distribution of the city’s population, from the late 1830s, an ever increasing portion of New Yorkers found themselves without sufficient access to market facilities. At the same time, an ever larger share of fresh food retailing shifted from the municipal markets to private stores. Additionally, residents also turned to an expanding informal economy of food retailing that operated out of stores, homes, or on the streets. This is to stress that the deregulation of meat retailing in 1843, in effect, corresponded to the legalization of an already existing informal economy.  

(3) Deregulation and Quality

This last point leads to the broader issue of the quality of the urban meat supply. The literature is more hesitant to address this problem, probably because quality is a more elusive category that defies any systematic way of measuring change over time. Komlos and Haines argued that as urbanization required food to be transported across larger distances, even as commercialization progressively separated the producer from the consumer, the quality of fresh food most likely declined. In the local context, urbanization put severe pressure on the traditional infrastructure of provisioning. In the case of New York City, the specific problem is how the transition from a public market to a free-market system of provisioning affected the quality of the meat sold. Importantly, New York’s shift to increasingly deregulated food markets was representative of similar developments in other major American cities during the mid-19th century. Moreover, the question of how deregulation affected quality connects to larger issues concerning 19th century urban governance, and in general, how urban societies defined the boundary between public and private responsibilities. Lacking quantitative data, the subsequent discussion remains suggestive.

A good starting point is the Common Council itself, which in the late 1830s and early 1840s endlessly debated the subject of deregulation. The Market Committee was undeniably in
favor of the public market system. In response to widespread complaints about the “market monopoly of meat” by some, or its violations by others, the Committee’s report from December of 1839 clearly articulated the underlying principles of the market laws, and how those promoted the “public good.” The central argument focused on public health.

The various and important duties which are now performed by the Superintendents and the Deputy Clerks of the Markets, in guarding the public health, by examining as to the wholesomeness of provisions; whether stale, or blown, plaited, raised or stuffed, measly or affected by disease; and whether proper cleanliness is observed; and as to other important Police regulations, as to weights, measures, &c., if the business of vending meats, &c., is not confined to the Public Markets, become entire vain and nugatory.

It has been proved, to the satisfaction of your Committee, that in several instances the carcasses of animals which have died, either from disease or some natural cause, have been cut up and offered for sale at some of the shops. Such a case could not occur at a Public Market. Skilful butchers could instantly detect the fact, and the person offering such meat would be immediately expelled from the Market, as was done only a short time since. The health of our city is a matter of the highest consideration; and the cleanliness, upon which it mainly depends, and which now characterizes our Public Markets, cannot possibly be preserved, if the business of dealing in all kinds of meats be diffused throughout the city.

The best Police regulations, which could be enacted, would be useless, because they could not be carried into effect.

The Market Committee thus portrayed the municipal infrastructure of provisioning as one central pillar in the City’s efforts to promote public health. This was a common line of reasoning, which the city’s butchers borrowed profusely. In their petition of February 1840, for example, they accused the critiques of the market laws with trying “to break down every barrier, and destroy every guard that the law has erected for the preservation of peace, health and morality.” Even the Council’s less biased Select Committee asserted this point one month later. “It is unnecessary to enter into a full discussion of the effect of unregulated pursuit of the business of butchers upon the public health and conveniences.” Only if police regulations are fully carried out—“slaughter houses be removed entirely out of the populated parts of the city,” as well as “all meats offered for sale undergo a proper supervision, as in other large cities in Europe”—they continued, could the market laws be abolished without harmful consequences for public health.

No such cautionary measures were taken. The ordinance that abolished the market laws, signed into law on January 20 of 1843, simply extended the same sanitary regulations to shop
butchers that applied to market butchers, yet without assigning specific inspectors to enforce them.\textsuperscript{77} Responding to the ordinance, the butchers cited a recent medical report by Drs. M. Post, Hosack, and Chilton, which, they argued, offered “irresistible and conclusive proof of the absolute necessity of protecting our citizens against the fatal results consequent upon the sale and consumption, as an article of food, of the flesh of diseased animals—a fraud so easily detected under the present system of the Public Markets.”\textsuperscript{78} The butchers were not talking out of thin air, but referred to a specific incident of meat poisoning. According to the medical experts, the source of the disease, affecting a family of seven, all of whom showed alarming symptoms of food poisoning, was a neighborhood grocer retailing smoked beef.\textsuperscript{79} It is also true that their recommendation was not to sustain the market laws, but rather to establish large public abattoirs in the Parisian model, to ensure the regular and thorough inspection of the city’s meat supply.\textsuperscript{80}

That public debates about the market laws were articulated in the discourse of public health is no surprise. By the early 19\textsuperscript{th} century, the sanitary movement had gained enough ground to push public health into the forefront of a wide range of urban reforms.\textsuperscript{81} But did market laws reflect the same awareness throughout the period?\textsuperscript{82} Strict limitations of market hours, or restrictions on the sales of specific items at certain seasons, were chiefly motivated by public health concerns. But this was a small part of the story. Market laws instituted high penalties for selling unwholesome provisions, and charged the Clerks, Deputy Clerks, and later Superintendent of Markets to inspect and enforce quality. Market officials also monitored the accuracy of measures and weights, and were responsible for collecting all revenues and fines. To be effective, they kept a close eye on the lawful occupancy of market space, including stalls and other vending spaces, the market limits, and the neighboring streets. They regularly prepared lists of vendors with their locations, issued or denied daily permits, and in cases of violations of the market laws, with an accompanying report, they had the right to suspend a butcher’s license. In addition, they oversaw the general cleanliness of their markets, employed sweepers for this purpose, and required butchers to keep their stalls clean. In short, market officials, especially the Deputy Clerks, who attended their respective markets daily, were granted extensive authority to uphold socially perceived norms of public health. The historical literature suggests that public markets were the only infrastructures by which American cities maintained some control over the quality of their fresh food supplies in this period.\textsuperscript{83}
City officials were one source of quality control: the internal organization of the market was another. One way to think about the public market is that it is one good example of an agglomeration economy derived from shopping externalities.\textsuperscript{84} Even if the market itself, from building to stall, was municipal property, market trade remained the domain of free enterprise. By concentrating the sale of all fresh food into one location, the market functioned much like a supermarket. But whereas the supermarket is owned by one firm, the municipal market agglomerated hundreds of independent retailers, encouraging competition between vendors. In theory, competition between vendors helped promote lower prices, greater selection or better quality of goods. If so, the market provided a balance of competitive business practice and strict municipal oversight. Besides, until 1843, the market laws restricted the sale of fresh meat, an immensely important part of the New York City diet, into a few locations. As provisioning was a frequent household responsibility, shoppers preferred to take care of their purchases in one trip. In other words, the market laws artificially amplified the agglomeration of fresh food into the city’s markets. Customers were forced to frequent marketplaces. Yet at the market, they not only could purchase all fresh provisions, but also were able to compare prices and quality across the retailers of the same goods.

If the first line of defense was the municipal government, and the second consumer choice, the third important mechanism of quality control was peer-pressure. Market vendors monitored each other to prohibit the violations of basic market principles. A butcher selling unwholesome meat faced formal and informal sanctions from fellow butchers. Endless petitions by licensed butchers complained how “shirk butchers,” selling meat in small pieces at the country market, violated market laws.\textsuperscript{85} The market law itself institutionalized peer-pressure. If a Deputy Clerk suspected that a butcher sold unwholesome meat, he called on the authority of “any two butchers whom he may select for that purpose… (the said butchers being under oath) to determine whether such article or provision sold or offered for sale as aforesaid, is stale or unwholesome, or whether such meat is blown or stuffed, or whether such pork is measly, and their judgment shall be final and conclusive.”\textsuperscript{86} Market vendors had a vested interest not only in protecting themselves from unfair competition, but also in maintaining the reputation of their marketplace. In particular, the butchers, who invested substantial capital into their stalls by which they retailed meat each and every day, were identified not only by the price, selection or quality of their cuts, but also by the general character of their marketplace.
This leads to the fourth line of defense, which has to do with the butcher’s trade. Despite fundamental changes in the structure of work in the first half of the 19th century, butchers remained one of New York’s last traditional urban trading craft, which status they vehemently defended. Market butchers may have exhibited rent-seeking when they exploited the discourse of public health to defend their trade privilege. Yet the butcher’s business indeed had special qualities. Unlike other food purveyors, butchers had to complete six, later four years of apprenticeship, before they could even apply for a market stall. Obtaining a stall depended on availability and one's reputation. When a young butcher applied, he had to submit a formal petition to the Council, which was customarily endorsed by fellow butchers and residents, who testified to the sound business practices and flawless moral character of the novice. If butchers were an exceptionally well-organized group, prominent in urban politics and at public events, it was because they were respected urban craftsmen, highly-skilled in the art of preparing and retailing animal flesh for Gotham’s meat-loving citizens.

Lastly, the fifth mechanism of quality control derived from the ongoing relationship between vendors and customers. Repeated transactions emerged out of two distinct conditions of urban marketing. Due to limitations of refrigeration technologies, households frequented the local marketplace multiple times a week. The other condition was that the butcher’s trade was spatially stable. Beginning in 1821, butchers rented stalls from the Council for annual rents. In addition, new stalls that opened up for occupancy were auctioned out for premiums. Even as the stall remained municipal property, a butcher had exclusive rights over this piece of market space. The point is that the market stall represented a butcher’s largest capital investment. As stalls were in limited supply, once a butcher obtained a good vending space, he would hold onto this possession. The market system thus not only restricted the sale of fresh meat into a dozen or so sites within the city, but also locked in butchers to specific slices of market space. If a butcher wished to relocate his business, he had to wait until another stall became available either at his own marketplace or somewhere else. In fact, one finds that 42% of the market butchers between 1818 and 1828, 44% of them between 1828 and 1838, and 17% of them over the two decades continued working out of their original marketplaces. Moreover, during the five years between 1832 and 1836, 58% of the stalls were held continuously by the original butchers, 23% had one, 11% two, and 7% had three occupancy changes. Out of these, 9% of transfers occurred between immediate relatives, 7% represents a butcher’s move from one stall to another within
the same marketplace, while many more must have taken place between distant relatives, trusted friends, or master butchers and apprentices.92

In a city, where people were constantly on the move, the market butcher’s business was permanent enough to establish one’s reputation and build a stable clientele. And stability was an essential element of the public market system. The myriad of petitions to the Council on behalf of individual butchers by customers testifies to the direct relationship between buyer and seller. Considering that customers purchased meat several times a week, while an average butcher held on to his stall for years, potentially hundreds of transactions were conducted between the same buyer and seller. For the consumer, repeated transactions ensured that the regular butcher could be trusted with the merchandise. The stability of the market business, and the repeated exchanges it fostered put a premium on the butcher’s reputation. If a butcher violated socially agreed business practices, the customer had the option to turn to another vendor at the same market, the Deputy Clerk could revoke the butcher’s license, while fellow butchers may have intervened to restore their market’s standing. The five lines of defense—city government, consumer choice, peer-pressure, skilled craftsmanship, and the direct sustained relationship between buyer and seller—added up to a sophisticated system of quality control under the market system.

The question is how markets compared to alternatives. To begin with, informal marketing most probably negatively influenced food quality. First, even if unlicensed retailers—selling meat at the street, from their homes, or at shops and basements—faced fines from city officials, they did not have to submit to the same scrutiny of quality control. If they escaped fines, or were ignored by the authorities, their goods could be as low quality as consumers tolerated. Second, with the exception of shop butchers, many of whom were forced into unlicensed vending because of the unavailability of market stalls, informal retailers, including grocers, knew little about meat compared to market butchers. Third, lacking a membership in a tightly-knit urban craft meant less peer-pressure from fellow tradesmen. Outside meat vendors may have worried about the reputation of their business, but they did not have to uphold the standing of their craft. Fourth, ongoing direct relationship between buyer and seller was less structured in the case of unlicensed vending. Informal trade, especially street vending, was by definition an unstable endeavor both spatially and over time. Of course, a grocer or a shop butcher, even if unlicensed, also needed to maintain a stable clientele.93 Yet the reputation of
market butchers derived not only from the repeated transactions between buyers and sellers, but also the sanction of city officials and fellow butchers. The informal nature of vending required sales to be kept in disguise. In short, the buyer had to trust more blindly the seller.

As for competition, different groups of vendors did not necessarily cater to the same clientele. Those who turned to street peddlers were the city’s poorest, whose choices were so constrained by price, that they had little freedom to worry about quality. Market laws tolerated the practice of peddling during the afternoon, precisely because market butchers and street vendors catered to different customers. Customers who chose between market or shop butchers—or even grocers—represented a different case. If residents could buy fresh meat at a dozen or so stores within walking distance, they had just as much freedom to find the best price, selection and quality, as well as to build lasting relations with specific vendors. It is also true that markets had the added advantage of offering all these options at one location, whereas spatially dispersed stores made the same routine of shopping less convenient.

The legalization of meat shops in 1843, in theory, did away with those concerns that derived from the clandestine nature of informal retailing. Still, many issues remained. Even if meat shop butchers were not unskilled, they did not go through the same rigorous apprenticeship as did the market butchers. Also, they easily avoided the supervision of city officials and fellow butchers. One somber indication that even after legalization the boundary line between official and unofficial meat shops remained porous is an 1847 police report. Policemen were required to record each and every meat shop in the city. They found 426 of them dispersed across urban space, yet according to the records of the Superintendent of Markets, only 178 held valid licenses and paid fees.94 Four years into liberalization, meat shops still escaped the control of city authorities. The Select Committee’s warning from 1840, it appears, was right on target: without proper inspection, the deregulation of meat retailing would create a landscape of uncertainty, by replacing a dozen marketplaces with hundreds of dispersed sites to monitor. The overall picture then is that in enforcing quality, the public market system was far superior to informal retailing, and probably much better than the free-market model of private shops. It may have required residents to walk greater distances to purchase provisions. It may also have artificially driven up prices by restraining competition, as many argued. Yet from the viewpoint of quality, the public market based system certainly had its advantages.
Public health experts worried even more about the unregulated practice of slaughtering. According to police reports from 1851, besides the city’s eleven public markets and 531 private butcher shops, no less than 206 private slaughterhouses generated an estimated 375,000 animal carcasses. Decentralized slaughtering caused grave nuisances for residents. To begin with, butchers drove live animals across the city’s streets from the cattle market to their slaughterhouses. Residents had to put up with intolerable sights and smells in the vicinity of slaughterhouses, many of which were located in densely populated neighborhoods, and were kept in dreadful sanitary conditions. Most importantly, as the city grew, the removal of animal waste became an insurmountable logistical problem. Offal, bones, hides, blood and other animal waste were transported via carts across the streets for processing or dumping, mostly into the rivers. The city contracted outside firms for the job. Even with the greatest care, this was a delicate business. Yet political corruption and bribery caused repeated interruptions to this basic sanitary service, most spectacularly in 1853-54. It took decades of public debate until finally, after the Civil War, city officials pushed slaughtering outside the city limits.

An equally important issue was the lack of systematic inspection of the city’s meat supply. Liberalization added hundreds of new retail outlets to the system, which likely further contributed to the decentralization of slaughtering and animal waste processing industries. In and of itself, the deregulation of meat retailing was not the problem. Paris—even if with interludes—or Mexico City went through similar processes of deregulation a few decades earlier. Yet in New York, deregulation in retailing was not complemented by increased regulation higher up in the provisioning chain, in particular at slaughterhouses and/or a central wholesale market. Famously, in 1810, Napoleon I ended the practice of slaughtering in Paris by building five public abattoirs in the outskirts, which opened five years later. In 1858, Napoleon III and his Prefect of the Seine Baron Georges-Eugène Haussmann improved the system by the reconstruction of the city’s central market—Halles Central—, and connecting it by underground railway to the livestock market and abattoirs at La Vilette (1869). The point is that the free market may have been a proper way to organize the daily exchanges between retailers and consumers, but only in so far as the meat offered for sale was thoroughly inspected at abattoirs and a central market.

What is puzzling about New York is that city officials fully understood the issue, yet failed to act. Throughout the 1840s and 1850s, public health experts called in vain for replacing
the city’s hundreds of private slaughterhouses with municipal abattoirs to be located north of Fortieth Street along the two rivers. The first to raise the subject was John H. Griscom, a disciple of Edwin Chadwick of London. As City Inspector in 1842, he argued for public abattoirs, which view was echoed by the annual reports of his successors. Above all, City Inspector Cornelius B. Archer expanded on Griscom’s points three years later. Revisiting the 1842 case of meat poisoning, he advocated the adaptation of the Parisian model of abattoirs, demanding that “all animals slaughtered at these places, should be subjected to rigorous inspection, condemning all that are unsound, and that no meat should be offered for sale in our market that had not been inspected and approved of.”

Report after report, City Inspectors expressed the same concerns. If after 1850 they devoted fewer pages to the subject, it must have reflected their frustration with having to repeat the same arguments at no avail.

A less effective, but still feasible strategy would have been to inspect food at a central wholesale market, similar to Halles Central. By the 1840s, the city’s largest market of Washington unofficially fulfilled such a role. The Council did make an effort to rebuild the dilapidated Washington Market in 1851. Plans were solicited, groups of vendors and city officials were consulted, even appropriations were made, but eventually, in 1854, Mayor Fernando Wood vetoed the project. By 1860, City Inspector D. T. Valentine stated that Washington and Fulton Markets—the two unofficial wholesale markets—“cannot be repaired, for there is nothing to repair, while their demolition would give satisfaction to all.” As for the smaller retail markets, two decades of neglect showed its impact: in 1860, the City Inspector described them as “a disgrace to the city.”

The most likely explanation of municipal inaction was the troubled state of public financing. Building a comprehensive system of public abattoirs and a central wholesale market would have been a costly undertaking. The City Corporation’s unprecedented indebtedness following the completion of the Croton aqueduct in 1842 presented a major obstacle to raise the necessary funds for expanding the provisioning infrastructure.

By the mid-1850s, City Inspectors were increasingly alarmed about unwholesome provisions. According to George W. Morton, while the sale of diseased meat disproportionately affected the poor, “to whom cheapness of price is an irresistible inducement,” unsound provisions were sold not only by hucksters and peddlers, but also at markets and especially in basements across the city. The indirect evidence presented is suggestive that the deregulation of meat retailing in 1843 had a negative impact on the quality of the meat supply. Combining
five lines of defense, public markets offered a far superior system of quality control than the city’s expanding informal meat trade, and performed better than the free-market model of dispersed private butcher shops. The best alternatives, pursued by other cities, to augment municipal oversight higher up in the provisioning chain were not implemented. Meanwhile, New York City’s population exploded from about 300,000 in 1840 to a little over 800,000 by the eve of the Civil War. Municipal inaction in the context of rapid urban growth resulted in the complete loss of oversight over the entire provisioning chain from slaughtering to retailing. Moreover, the lack of investment in existing public markets allowed for the dilapidation of a once successful infrastructure. Horowitz suggests that the overall outcome had to be chaos. As he puts it, after deregulation “consumers may have found obtaining meat more convenient,” but their meat was “almost certainly not as wholesome.”

(4) Inequality

Thus far the analysis presumed the average New Yorker as the consumer. Per capita consumption figures or statements concerning the general quality of the city’s meat supply are informative. But they overlook the central issue of how the observed trends affected different social groups of residents. New York, compared to most other major Western cities, had an exceptionally diverse population, stratified by class, national origin, and race. Both Komlos and Haines underline that rising disparities of income, which characterized the period of early industrialization, disproportionately affected the nutritional status of lower income groups. Their data bear out the finding that the decline in physical stature was more pronounced for lower than middle-class Americans. In turn, as cities represented an ever greater share of the national population, the worsening of the health and nutritional status of the urban working-class contributed to declining average physical stature. If New Yorkers—on average—from the mid-1830s ate less and poorer quality meat than a generation before, it would be important to know how these trends affected consumers of different social status.

Meat consumption differed with income in two principal ways. First, better-off New Yorkers could afford to eat more meat. It is also true that in New York even the poorest ate an impressive amount, even if overall meat consumption declined from the mid-1830s. More importantly, wealthier residents consumed what were considered better quality cuts. De Voe’s The Market Assistant attests to the strict hierarchy of the different cuts of beef, New Yorkers’
primary source of protein. Better-off New Yorkers were more likely to purchase boneless, tender, and more flavorful cuts, which they usually ate as roasts or steaks, whereas poorer residents depended on tougher, leaner, bonier pieces served mostly in stews and soups. But these distinctions have little to do with public health.

A closer look at spatial relations presents a more systematic approach. Historians have argued that during the second quarter of the 19th century, social inequalities increased in New York, while urban growth was complemented by greater residential segregation based on class and ethnicity. What role did segregation play in differential access to food supplies? Traditionally, inequalities in access to food were determined not by residential location, but by the daily schedule of marketing. As De Voe explains, the market-day commenced at daylight, and ended by early afternoon. The earlier the hour, the greater the selection and the better the quality of the provisions were, while as the day progressed, so did the variety and the quality of food diminish. Correspondingly, food prices declined as the day progressed, sorting different strata of customers for different times of the day to visit the markets. As informal food retailing expanded from the 1830s, and the Council deregulated the meat markets in 1843, this tightly-knit public market order gave way to a more complex, fragmented provisioning landscape, offering residents greater flexibility to schedule their shopping journeys. Meanwhile, New Yorkers looked for shelter in an ever more segregated housing market. As these two processes coalesced, residential location became the most important factor in determining one’s range of options in food retail outlets.

Earlier, the spatial analysis highlighted that the development of the public market system from the late 1820s fell behind urban growth (table 5). A closer look at the maps also revealed the emergence of two distinctive spatial patterns. North of Fourteenth Street, where public markets were entirely lacking, New Yorkers relied on butcher stores, groceries and informal vendors. South of Fourteenth Street, residents still had access to public markets, which now competed with a range of informal and licensed food retailers. In these central and southern districts, a second spatial pattern developed, by which the scale and quality of the municipal markets—measured by their revenues and average rental value of retail space—progressively declined from west to east. Importantly, this west to east decline did not correspond to relative population densities. On the contrary, eastern wards were more densely populated than western ones, even as they were supplied by smaller and lower quality food markets. In other
words, from the 1830s, a growing mismatch developed between local residents’ demand for fresh food and what the public markets were supplying. One possible explanation is that these patterns reflected income inequalities and/or cultural preferences. The subsequent maps (11-16) pursue spatial correlations between the hierarchy of the public markets and a range of ward level social indicators based on the state censuses of 1845 and 1855.

The first two maps examine the class composition of the city’s wards in 1845. Lacking income data, I use two proxies: the ratio of children attending public versus private schools, and the number of residents per attorney in each ward. The literature does suggest a strong correlation between class status and public versus private schooling. By the 1840s, private schools requiring tuition served the wealthy, whereas working-class families sent their children to common schools. Middle-class families were more divided on their choice. The second map follows the conventional approach of looking at occupations. The number of residents per attorney directly reflects the residential preferences of one middle-class occupation.

Looking at common versus private schooling, one finds consistently increasing ratios from west to east. The highest ratios were in the far eastern wards 11 and 13, and in the central eastern wards 4, 6 and 15. In addition, wards 7 and 17, also in the city’s eastern side, had relatively high ratios. Ward 15, corresponding to Greenwich Village, New York’s wealthiest neighborhood, had the lowest rate of public schooling. Clearly, families residing in the western wards were more likely to send their children to private schools. Given that private schooling was a function of disposable income, it is a strong indicator of residential segregation based on income disparities. The map representing the residential distribution of attorneys confirms this picture. Virtually no attorneys lived in the far eastern wards 11 and 13 and southeastern ward 4, while only very few of them resided in the central eastern wards 6, 7, 10 and 14. On the west, only ward 8 had a similarly low number of attorneys. Again, ward 15 was the most likely area to give home to members of this middle-class profession, followed by wards 5 and 9.

Comparing more directly the biological standard of living, the third map studies ward level crude death rates in 1855. The map points to rising mortality from west to east. Mortality was highest in ward 1 in the south (very few people lived in the area), ward 6 in the center, where the notorious and overcrowded “Five Points” was located, and ward 24 in the thinly populated north. The second tier of high mortality rates were confined to the eastern wards of 4, 7 and 13, and to the northern wards of 18 and 20, while the third tier included wards 11 and 17.
Maps 11-14: Socio-spatial relations, 1845 & 1855
on the east, ward 14 in the center, and ward 5 on the southwest. Ward 5 was, in fact, the only western area with relatively high mortality. All the other western wards (8, 9, 15 and 16) belonged to the city’s healthiest districts.

The other important factor is the residential distribution of immigrants. The subsequent map studies the percentage of foreign-born in the population of each ward in 1855. The distribution of immigrants followed clear south to north and west to east patterns. Ward 1 and the southeastern wards of 4 and 6 had the highest percentage of foreign-born. More than two-thirds of the residents of these districts were born abroad. In addition, eastern wards were far more likely than western ones to give home to immigrants. Wards 11, 17 and 18 on the northeast, and to a lesser extent, wards 7, 10, and 13 in the center east joined the club of the city’s most immigrant areas. In contrast, the most native wards (8, 9 and 15) were all located on the west. It is also true than in New York, even the most native ward 9 was nearly one-third foreign-born.

The Irish and the Germans were the two largest foreign ethnic groups. The Irish, representing 28.2% of the total population in 1855, lived all over the city, but especially in the

36
central and southeastern wards of 4, 6, 7 and 14, and in wards 18, 19 and 21 on the northeast. The spatial distribution of Germans followed a simpler pattern. Germans—representing 15.7% of the city’s population—concentrated in around Klein Deutschland, at the intersection of the eastern wards 10, 11, 13 and 17. It is also true, that even in the most German ward 11, “only” one-third of the residents were born in one of the German states, whereas for the Irish ward 4, the Irish-born represented nearly one-half of the total population.

That east of Broadway, and further north, east of the Bowery, the city’s wards were more working-class and immigrant is not a new finding. Scholars have made this point before, stressing the growing social inequalities of mid-19th century New York City. Yet comparing these more widely noted residential patterns to the spatial organization of food retailing allows for new interpretations concerning one understudied aspect of the standard of living: household provisioning. Unfortunately, the analysis has to be limited to south of Fourteenth Street, as communities north of this line were left without convenient access to public markets, and no comparable data are yet available to study private retailers.

The maps point to two conclusions. First, the west to east decline of the market system strongly corresponded to New York’s increasingly demarcated class relations of space. Residents living in working-class eastern wards had to be satisfied with smaller and lower quality food markets. This was most pronounced for wards 10, 11, 13 and 17, a vast, densely packed working-class area, which was left systematically underserved by this municipal infrastructure. Given the inadequate market facilities, local residents relied chiefly on groceries, meat shops and street vendors. The same pattern, to a lesser extent, applied to the southeastern wards of 4, 6 and 7. Residents here still had access to Catharine, tiny Goveneur, and marginally to Essex and Centre Markets. Yet by the 1840s, with the exception of Centre, they became insufficient to supply these densely populated working-class wards. In particular, Catharine Market, once one of the city’s largest and best, declined sharply from the 1830s both in terms of its volume of trade and the rental value of its stalls, suggesting that much of its business was captured by nearby stores and unlicensed vendors. At the other end of the spectrum, were the western wards of 8, 9 and 15. These middle-class districts had access to larger and better quality public markets: Clinton and Centre in the inner, and Jefferson and Tompkins in the outer ring. In particular, ward 15, the city’s wealthiest area, was conveniently situated between the two best outer ring retail markets, Jefferson and Tompkins.
The second conclusion concerns ethnicity. Wards 10, 11, 13 and 17, the area with the least access to public markets, comprised the German settlement of Klein Deutschland. As Robert Ernst points out, Germans engaged in the butchering trade more than any other ethnicity. Capitalizing on their old world skills as food purveyors, and serving a traditionally meat-eating ethnic clientele, German butchers operated meat shops across the neighborhood. By 1855, two-thirds of the city’s foreign-born butchers were German.\textsuperscript{124} An ethnic divide likely persisted between market and shop butchers. Market butchers belonged to a tight trade organization with an apprenticeship system, whereby obtaining a stall depended on formal petitioning and personal connections. In short, market laws protected native-born butchers from the competition of newcomers. Deregulation in 1843 opened the floodgates of immigrants entering the business, and Germans seized the opportunity.\textsuperscript{125} The point is that residents of Klein Deutschland may have been left without sufficient food markets, and had to rely on meat shops, groceries, or street vendors. Yet many of the local retailers, especially the butchers, belonged to the same ethnic group. Besides selling more familiar cuts of meat, butchers were personally known to local customers. Moreover, coming from a meat-eating culture, Germans were comparatively skilled shoppers when it came to provisioning their households with proper quality of meat.

The Irish faced a far more difficult situation. The northeastern wards 18, 19 and 21 were left without public markets, while the southeastern wards 4, 6 and 7 had access to markets, but those fell short of supplying these densely packed Irish working-class areas. Local residents increasingly depended on meat shops, groceries or street vendors. But unlike the Germans, Irish households could not count on strong ethnic ties with food purveyors, while they also had much less experience with buying and preparing meat. By the 1850s, corner groceries had already passed from Irish to German hands, and the Irish did not enter the butchering trade at any comparable rate. As food retailers, they engaged in marginal trades as fish and oyster dealers, hucksters, fruit and produce vendors, or street peddlers.\textsuperscript{126} In short, the Irish of the southeastern wards had access to a range of food retail outlets. Yet the food markets were insufficient in scale and quality, market butchers were likely to be native-born, and compared to Klein Deutschland, storekeepers were unlikely to share ethnicity with their customers.

A stark contrast to this situation was that of the well-off western wards 8, 9 and 15. Here native-born residents purchased meat at larger and better quality markets from craftsman butchers who were also likely to be native-born. Of course, meat shops and groceries also served
the area. Groceries were relatively evenly distributed across the city, and butchers retailed from shops in these wards as well. Differences in the daily routines of provisioning were relative, just as the nativity of a ward was a matter of degree in America’s most immigrant city. Still, living in ward 15, and being supplied with fresh meats through De Voe’s neatly kept stall at Jefferson Market was a different condition of provisioning than shopping at the dilapidated Catharine Market or at the corner groceries, meat shops and peddlers of the Irish ward 4.

To conclude, there is strong evidence that spatial relations of class and ethnicity shaped New Yorkers’ options of food retailers. In the north, there were no markets at all. South of Fourteenth Street, where the municipal infrastructure still existed, the most densely populated, immigrant working-class wards were supplied by comparatively smaller and lower quality food markets. Whereas middle-class residents in the western wards were more likely to continue the old routine of relying on craftsman market butchers, working-class shoppers depended more on complementing and/or substituting the traditional marketing journey with purchases at meat shops, groceries or street vendors. These trends were not absolutes, as residents even in the wealthiest districts frequented groceries or shop butchers. Still, they represented real differences in the daily routines of household provisioning based on class and ethnicity.

These spatial relations, of course, only complemented the more obvious source of inequality: that poorer residents had less disposable income. Working-class customers purchased less and/or lower quality meats than those better-off. In other words, the causation worked the other way around as well: markets were smaller and of poorer standard in immigrant working-class neighborhoods because residents could only afford less and cheaper cuts of meat. This was reflected in the lower amount of market revenues collected, the declining rental value of the butcher stalls, and the widespread competition of cheap groceries, meat shops and street vendors, selling provisions at bargain prices and smaller quantities.

The main point is that it made a difference from whom and under what conditions one purchased meat and other fresh food in rapidly growing New York City. Besides greater disparities of income, changing socio-spatial relations from the mid-1830s exacerbated inequalities in access to wholesome provisions. As argued earlier, municipal markets were the only institution available to ensure basic standards of quality in the city’s food supplies. New Yorkers relying on meat shops, but especially on groceries and informal street vendors, faced comparatively greater risk of eating poor quality, potentially even contaminated food. Residents
of working-class Klein Deutschland could at least count on personal ties with the ethnic butcher or grocer, while also relying on their own experience with handling meat to shield against irresponsible retail practices. Yet for the much larger Irish community, and for most of working-class New Yorkers, such ethnic ties did not exist to compensate for the shortcomings of a completely unregulated provisioning system. If the earlier conclusion was that the expansion of informal retailing from the 1830s, and deregulation in 1843 had a negative effect on the quality of the city’s meat supply, this now has to be qualified by adding that deteriorating quality—just like falling per capita consumption—disproportionately affected the city’s poorer and working-class residents.

Conclusions

This paper has proposed a series of conclusions concerning meat consumption in New York City during the first half of the long 19th century. Even if the limitations of a case-study approach are obvious, looking at America’s first metropolis offers new insights concerning urban living standards in general, and the Antebellum puzzle in particular. To begin with, new data based on food markets have been presented to estimate urban meat consumption rates for a much undocumented period. The data reveal that between 1790 and 1818, New Yorkers ate about 160 pounds of fresh red meat per capita, comparable to the highest recorded figures in American history during the 20th century. For the following decades, only circumstantial evidence is available. Yet all data point to the widely acknowledged trend of falling per capita meat consumption from the mid-1830s. Evidence based on New York, Boston and Philadelphia corroborate Komlos’s claim that the decline was related to the recession of 1837/43. The recession did not trigger, but rather exacerbated an already unfolding negative trend, driven by changing supply conditions, and pushed per capita meat consumption to unprecedented lows, from where it recovered only after the Civil War. In so far as the amount of protein consumed at infancy, childhood and adolescence mattered, the evidence is now stronger that the recession of 1837/43 played a role in the Antebellum trend of declining physical stature.

The paper also highlights some of the distinctive qualities of urban provisioning. City dwellers consumed more meat than their rural counterparts who fed them. They also enjoyed the privilege of eating chiefly fresh meat—above all, beef—all year around, whereas those living in the countryside relied mostly on preserved meats. Yet urban consumers paid a price for
depending on a complex provisioning system. External shocks—epidemic disease, war and other political calamities, or economic recessions—could destabilize urban food systems. For instance, at times of yellow fever or cholera, the supply of beef could fall as drovers avoided cities in fear of contracting the disease. Similarly, a war could isolate New York from its hinterlands, while also disrupting the daily functioning of the provisioning system. At times of recession, city dwellers not only faced economic hardships, but unlike their rural counterparts, they had no alternative food supplies to fall back on. The point is that urban provisioning was a mediated process. Historians have yet to appreciate how this mediation actually worked and changed during the early Republican and Antebellum periods, and how these processes affected living standards in a rapidly urbanizing nation.

The urban angle also brings the important issue of quality into focus. Lacking direct data, the analysis concentrated on the provisioning infrastructure. Indirect evidence suggests that New York’s shift to deregulated food markets adversely affected the quality of meat and other fresh food supplies. Importantly, the process of liberalization explored in the case of New York was paralleled by similar developments in other major American urban centers. This general trend towards unregulated food markets coincided in time with rising urban mortality rates and declining physical stature across the nation. Establishing direct causal relations is beyond the reach of historical evidence. Yet it is reasonable to suggest that New Yorkers probably paid a price in their biological standard of living for giving up their institutional capacity to monitor the quality of fresh food supplies. Moreover, the spatial analysis revealed the ways in which intensifying residential segregation based on income and ethnicity was intricately tied to unequal access to provisions. New Yorkers experienced inequalities in many aspects of their living standards. While housing may have attracted the most attention from scholars, it appears just as important to document the unequal consumption of basic household goods such as food.

New York City, of course, is only one case, and it is easy to see how it may not be representative. Further case-studies are needed to arrive at more definitive conclusions about Antebellum urban meat consumption not only with regards to quantity, but also as concerns the less studied aspects of quality. Such a renewed and comprehensive approach to how American cities managed their infrastructure of provisioning in response to rapid urban growth would have the added benefit of providing joint pieces of the Antebellum puzzle in support of both lines of explanation: the nutritional thesis, and the focus on urbanization and disease environments.
Declining body heights for cohorts born from about 1830 to 1860 was first noted among white Union Army recruits, and has later been found among West Point cadets, free blacks in Maryland and Virginia, Georgia convicts, and Ohio National Guardsmen. Further research confirmed that the phenomenon was not confined to the United States, but body heights declined in Britain, Sweden, the Habsburg Monarchy, and Bavaria in the mid- to late 18th century, while the American cycle in the mid-19th century had its European counterparts in Britain and the Netherlands. John Komlos, "Shrinking in a Growing Economy? The Mystery of Physical Stature during the Industrial Revolution" The Journal of Economic History 58, no. 3 (1998): 909-913; Robert A. Margo and Richard H. Steckel, "The Heights of American Slaves: New Evidence on Slave Nutrition and Health" Social Science History 6, no. 4 (1982): 516-538; Michael R. Haines, "Growing Incomes, Shrinking People: Can Economic Development Be Hazardous to Your Health?: Historical Evidence for the United States, England, and the Netherlands in the Nineteenth Century" Social Science History 28, no. 2 (2004): 249-270.

In so far as adult body-height is positively related to meat consumption levels at infancy, childhood and adolescence, it can serve as a useful proxy for studying living standards. Recent research also corroborates that assuming an ideal body mass, taller people tend to have stronger immune systems. Robert William Fogel, The Escape from Hunger and Premature Death, 1700-2100 (Cambridge: Cambridge University Press, 2004).

His reasoning was that productivity gains in agriculture lagged behind the growing demand for food that was a result of population growth and urbanization. Per capita food output declined, while rising relative food prices also pushed consumers to substitute carbohydrates for meat. John Komlos, "The Height and Weight of West Point Cadets: Dietary Change in Antebellum America" The Journal of Economic History 47, no. 4 (1987): 908-919.


Until the invention of refrigerated railroad-cars and ships, transportation technology was not up to the task to ensure the shipment of fresh meat and milk over long-distances at sufficiently low-prices to offset this trend.


When calculating per capita selected livestock, milk and milk products, he excluded New York City, as it imported all of its food supplies, and much of it from out of state. It is also unclear what percentage of the livestock was consumed locally or exported to cities. Haines's figures therefore do not refer to actual consumption rates, but instead suggest relative consumption. Michael R. Haines, "Health, Height, Nutrition, and Mortality: Evidence on The "Antebellum Puzzle" From Union Army Recruits in the Middle of the Nineteenth Century" National Bureau of Economic Research Historical Working Paper Series 107: table 3.

Their data did not bear out any relationship between falling per capita nutrition and higher mortality rates. However, a small but positive relationship was found between regional specialization in agricultural production and mortality. The logic behind this was that commercial farming resulted in more specialized, that is less diversified, regional agricultural production, which in turn, contributed to the deteriorating composition of local diets. Access to regional transportation networks increased county-level crude death rates by about four per thousand, while a ten percentage point increase in the share of a county’s urban population increased mortality by about 1.3 to 1.4 deaths per thousand. Michael R. Haines, Craig, Lee A., Weiss,Thomas, "Development, Health, Nutrition, and Mortality: The Case of the 'Antebellum Puzzle' in the United States" National Bureau of Economic Research Historical Working Paper Series no. 130: 249-270; Michael R. Haines, Lee A. Craig, and Thomas Weiss, "The Short and the Dead: Nutrition, Mortality, and the “Antebellum Puzzle” in the United States" The Journal of Economic History 63, no. 02 (2003): 396-398.

The data was collected by Robert W. Fogel, Stanley L. Engerman, Clayne Pope, and Larry Wimmer. Robert W. Fogel et al., “Union Army Recruits in White Regiments in the United States, 1861-1865” (Inter-university Consortium for Political and Social Research (ICPSR) [distributor], 2001. Available at: http://dx.doi.org/10.3886/ICPSR09425.
An individual who spent infancy and early childhood in a county that produced a net surplus of protein by one standard deviation higher would have ended up about one to two-tenths of an inch taller as an adult than someone growing up in an average county. Growing up in a county with eight per thousand deaths more than the average resulted in 0.11 to 0.13 inch lower adult body heights. Spending infancy and early childhood in a county with good access to transportation reduced adult body heights by about a quarter of an inch, while for every ten percentage point increase in the urban share of a county’s population, adult body height would have been one-tenth of an inch lower. Finally, farmers tended to be taller than laborers, offering further evidence of the negative impact of urbanization. Haines, "Development, Health, Nutrition, and Mortality: The Case of the 'Antebellum Puzzle' in the United States": 11-12; Haines, Craig, and Weiss, "The Short and the Dead: Nutrition, Mortality, and the “Antebellum Puzzle” in the United States": 405-407.

Rising per capita income “was partly purchased at a price of some deterioration of the biological standard of living.” Haines, Craig, and Weiss, "The Short and the Dead: Nutrition, Mortality, and the “Antebellum Puzzle” in the United States": 409.


Both Komlos and Haines point out that urbanization required food to be transported across larger distances, while commercialization increasingly separated the producer from the consumer, which factors in turn caused greater concerns over the quality of fresh food, in particular meat and milk. Yet to arrive at even suggestive answers about quality, one has to move below the national level. Haines called for more research at disaggregated data—states, counties, and specific cities. This paper addresses both the quantity and quality of the urban meat supplies through an urban historical case-study. Haines, "Development, Health, Nutrition, and Mortality: The Case of the 'Antebellum Puzzle' in the United States": 15; Komlos, "Shrinking in a Growing Economy? The Mystery of Physical Stature during the Industrial Revolution": 790.

For Fly Market, I have compiled monthly returns for 1816 from January to October. For Washington, the 1816 monthly returns miss only November, while there are additional data available for March, October, November and December of 1818, and from between January and April in 1819. Moreover, the Washington Market returns also include daily counts. As for Catharine Market, monthly returns are available from January to October in 1816, and for each month of the year in 1818. For sources: Common Council Microfilm Database, New York City Municipal Archives [CCMD (NYC-MA)]: “Returns of all the Beeves, Calves, Sheep & Hogs in the Different Markets of the City”, Market Committee: 1816, Box 59, Folder 1416; “Returns of all the Butchers in the Different Markets of the City”, Market Committee: 1816, Box 59, Folder 1416; “Returns of the Butchers in the Different Markets of the City”, Market Committee: 1816, Box 59, Folder 1416; “Returns of all the Beeves, Calves, Sheep & Hogs in the Different Markets of the City”, Market Committee: 1818, Box 66, Folder 1535; “Returns of all the Beeves, Calves, Sheep & Hogs in the Different Markets of the City”, Market Committee: 1818, Box 66, Folder 1535; “Number of Creatures Sold in Catharine Market”, Market Committee: Stalls & Licenses, July-December 1818, Box 66, Folder 1537; “Returns of all the Beeves, Calves, Sheep & Hogs in the Different Markets of the City”, Market Committee: 1819, Box 72, Folder 1595.


As a first step, I used all available data to fill the gaps, and to arrive at complete monthly returns for the three principal markets in 1816 and 1818. The more complete returns for 1816 were used as reference data to make
estimates for 1818 when necessary. The second step was to estimate the volume of trade at the missing markets. In 1816, the number of occupied butcher stalls was 63 at Fly Market, 55 at Washington Market, and increased from 24 to 48 over the course of the year at Catharine Market. In comparison, the other markets were much smaller: in 1816, there were twelve stalls at Collect, six at Greenwich, five at Spring, three at Governeur, two at Duane, and one at Corlears-hook Markets, whereas in 1818, there were eight in Essex, six at Greenwich, three each at Grand and Governeur, and one at Corlears-hook Markets. Butcher stalls at these smaller markets represented less than 15% of all occupied stalls in the city in 1816, and only 10% in 1818. To estimate the volume of trade at these markets, I assumed a one-to-one relationship between the number of butcher stalls occupied and the volume of meat sales at a given market. The respective trade at Fly, Washington and Catharine Markets does bear out such a relationship.

17 It is impossible to know how substantial this portion was. Yet the fact that city officials were concerned foremost with the supply of fresh red meat, while respectable butchers, representatives of a powerful urban trading craft, would handle only beef, veal, lamb and mutton, and pork underline the social and cultural importance of red meat. Reconstructions of John Pintard’s 1811, 1814 and 1827 household budgets are also suggestive. They show that Pintard allocated 55% of his family’s meat expenditure to butcher’s meats, while the rest he divided about equally between cured meats and poultry, fowl and game. To be more precise, in 1811, Pintard spent 54.8% of his meat budget on red meat, 30.6% on processed and preserved meat, and 14.5% on poultry, fowl and game. The respective ratios in 1814 were 54, 26.4, and 19.6%, while in 1827, they were 56.9, 12.5, and 30.5%. Of course, one should be careful not to over-generalize based on a single case, especially when the sample comes from a high-income food budget. Pintard’s relative expenditures on preserved meat and poultry, fowl and game also changed too much year-by-year to establish any pattern even for this household. Moreover, one cannot convert Pintard’s expenses into actual amounts of meat consumed. Still, the fact that Pintard’s purchases of butcher’s meat hovers around 55% highlights that while red meat was of great importance, it constituted only part of the average New Yorker’s meat basket. While Pintard’s upper middle-class family is not to be taken as representative, these ratios point to the prominence of red meat in the New York City diet. One should also note that poultry, fowl and game were comparatively expensive, and thus the meat basket of an average New Yorker probably relied more heavily on red and/or preserved meats. NYHS-MD: John Pintard Papers, “Marketing Account Book, 1811-1824”; John Pintard Papers, “Marketing Account Book, 1826-1830”; John Pintard Papers, “Record of Household Expenses, 1826-1828,” Box 9, Folders 1-3.

18 According to the 1816 and 1818 dataset, for a population of 93,634 in 1816, there were 19,165 cattle, 24,450 calves, 79,852 sheep, and 9,491 hogs slaughtered for sale at the New York City markets. Two years later, for an estimated population of 107,625, the corresponding figures were 20,535 cattle, 24,190 calves, 76,900 sheep, and 8,645 hogs. To translate these figures into per capita consumption of beef, veal, lamb, and pork, I borrowed the conversion rates used by John Komlos: 450 pounds of dressed weight for Northern cattle, 40 pounds for sheep, and 133 pounds for hogs. Komlos’s slaughter weights have been criticized by Robert E. Gallman for yielding smaller outputs per animals than those of other scholars. This is likely to be the case for pork. I still prefer using Komlos’s ratios for two reasons. First, they make my estimates comparable to those of Komlos and Haines for the mid-19th century, which are based on census figures. Second, by slightly underestimating slaughter weights, my estimates address the concern that there was probably a small increase in the average weights of cattle from between the 1810s until the middle of the 19th century. To establish average slaughter weights for calves is more problematic, given that the animal’s weight varies greatly with slaughtering age. For lack of better data, I use the tax ratio paid by the butchers: 24 cents per cow, versus 4 cents per calf. The average dressed weight of a calf is thus 75 pounds. Komlos, "The Height and Weight of West Point Cadets: Dietary Change in Antebellum America". 897-927; John Komlos, "Anomalies in Economic History: Toward a Resolution of The "Antebellum Puzzle"" The Journal of Economic History 56, no. 1 (1996): 202-214; Robert E. Gallman, "Dietary Change in Antebellum America" The Journal of Economic History 56, no. 1 (1996): 198.

19 Two caveats are in order. First, these figures are likely to slightly underestimate per capita butcher’s meat consumption, as they refer to animals officially accounted for and prepared and sold by licensed butchers at the city’s public markets. Given the “market monopoly of meat,” this should have been the whole supply. Yet despite a well-functioning and strictly enforced public market system at the time, there was already evidence of some informal trade. It is also unlikely that Market Clerks managed to count all animals sold by the butchers. Butchers paid taxes after each and every animal was slaughtered, and thus had the incentive not to report all sales. The figures, on the other hand, may also slightly overestimate per capita consumption. By 1810, New York surpassed Philadelphia to become North America’s most populous city and greatest emporium of commerce. At any given
day, there were many thousands more eating butcher’s meat in New York than there were residents. It is impossible to know which factor was more important, and to what extent the two cancelled each other out.

20 The annual family income gradients used by Horowitz are as follows: the lower third represents families making under $1,000 in 1909, under $1,500 in 1942, and under $3,000 in 1965; the middle tier refers to families earning between $1,000-2,000 (1909), $1,500-3,000 (1942), and $3,000-6,000 (1965); while the highest income tier is defined as families with incomes over $2,000 (1909), $3,000 (1942), and between $6,000 -15,000 (1965). The 1965 study also included a fourth, even higher income group, which was not present in the earlier surveys. To avoid skewing comparisons, Horowitz separated out this group from the study. Roger Horowitz, *Putting Meat on the American Table: Taste, Technology, Transformation* (Baltimore: Johns Hopkins University Press, 2006), 11-17.

21 As for pork, the figures were 67 pounds in 1909, 63.7 pounds in 1942, and 58.7 pounds in 1965. The gradual decline of pork consumption was compensated by Americans’ growing appetite for poultry of which they ate 14.7 pounds in 1909, 20.7 pounds in 1942, and 40.9 pounds in 1965. Ibid., 6.


23 In 1790, the city decided on the following method of collecting fees: the Council charged two shillings for every cow, four pence for every calf and sheep, and six pence for every hog brought to market. Subsequent market laws, such as the one from 1793, upheld the same rules of taxation. The 1812 and 1814 market laws also use the same rates, but in dollar-cents: 24 cents for each cattle, 4 cents for each calf and sheep, and six cents for each hog. For converting pennies into cents, I used the same ratio as did the City Council documents: 0.96 penny to a cent. By 1812 and 1814, there were special cases that slightly complicated this method of taxation. For example, the 1814 market law suggests that some of the butchers may have held licenses that exempted them from fees for certain items. Farmers, bringing their own animals to market, paid the exact same rates as did the butchers, and so did the city’s few licensed butchers who retailed from street stalls. However, those who resold items at the market with the Clerk’s permission had to pay three times as high fees, while those who violated the market laws paid high fines. On the whole, these were minor exceptions. The basic rule remained the same over the entire period: market fees were collected based on the number of animals slaughtered for sale at the city’s markets. For sources: Common Council, *Minutes of the Common Council of the City of New York, 1784-1831*, Vol 1: 534; New York (N. Y.), *Laws and Ordinances Ordained and Established by the Mayor, Aldermen and Commonalty of the City of New-York* (New York: Hugh Gaine, 1793), 6-10; New York (N. Y.), *Laws and Ordinances Ordained and Established by the Mayor, Aldermen and Commonalty of the City of New-York* (New York: Pelsue and Gould, 1812), 154-164; New York (N.Y.), *A Law to Regulate the Public Markets* (New-York: J. Hardcastle, 1815).

24 For the period between 1790 and 1800, the Proceedings of the City Council report the total amount of market fees collected for each year. After 1800, the records are more sporadic, and require small corrections in order to arrive at annual fees. For 1801 and 1802, the records combine fees for two years, which I have separated out. For 1804, 1805 and 1806, the records refer to a full year, however, beginning in November 1 of the previous year. In these cases, I have not made adjustments, and thus the figures refer not to the calendar but to the fiscal year. In addition, for 1804, only the amount kept by the treasurer was given, which was 50%, while the other half went to the Mayor’s coffers. For 1807, the recorded fee refers to fourteen months, also including November and December of 1806. In this case, I have relied on the 1816 data to estimate the percentage of fees collected in these extra months, which I have subtracted to estimate the annual total. For 1813, the recorded fee is again the annual total for the calendar year. Another complication is that for some years, the full amounts of fees are given, while at other times, the records provide the net amounts, which do not include expenses on sweeping and the Market Clerk’s salary. Knowing fairly precisely how much money was spent on sweeping, and given that the Market Clerk kept about 10% of the fees, I have estimated the full amount for each year when only the net fee was available. This is because the full amount is a function of the number of animals slaughtered. As for 1816 and 1818, I have used the original Market Clerks’ returns complemented with De Voe’s records to estimate the total amount of fees collected. Incomplete market data from the Council proceedings for these two years confirm that the conversion method based
on the Market Clerks’ returns of the animals slaughtered and the respective taxes paid on them produce reliable results.

Finally, I have used all available census records for New York City—1790, 1800, 1805, 1810, 1814, 1816, and 1820—to arrive at yearly population figures for the period, assuming a constant rate of population change between the two closest known observations. Rosenwaike, Population History of New York City, 18.

Exorbitant prices were only part of the story, as meat sales swiftly recovered by 1816, despite prices remaining high. The war not only disrupted the city’s connections to its hinterlands, causing shortages in meat supplies, but also interrupted the day-to-day functioning of the city’s vital institutions, including its infrastructure of provisioning. It took some time for the markets to fully recover, and for the city’s butchers to resume business. De Voe, The Market Book: A History of the Public Markets of the City of New York, 410. For a brief account of the war years in New York: Edwin G. Burrows and Mike Wallace, Gotham: A History of New York City to 1898 (New York: Oxford University Press, 1999), 425-428.

The 1798 yellow fever epidemic severely disrupted New York City’s economic life. The city’s system of provisioning virtually collapsed. Feeding the poor became the major concern of the Common Council’s Health Committee. Three provision centres were established. At the peak of the epidemic, between 1,600 to 2,000 people were fed daily at these centres. In addition, 800 more were provisioned through the Almshouse, and 500 families were permitted to obtain free rations at temporary stores. For a detailed account of this and the other yellow fever epidemics in New York: John Duffy, A History of Public Health in New York City (New York: Russell Sage Foundation, 1968), 105-109, 101-123.

The embargo caused severe hardships to New York’s economy. For example, between 1807 and 1809, municipal expenditures on relief increased by about 70%. Burrows and Wallace, Gotham: A History of New York City to 1898, 412.

For such a conversion, one ideally needs to know the relative importance of the four kinds of butcher’s meat throughout the period. Lacking such data, my estimations make the assumption that the 1816 ratios between the sales of beef, veal, lamb and mutton, and fresh pork reflected stable consumption patterns.

This is a reasonable, but by no means unproblematic assumption. Billy Smith’s reconstruction of a Philadelphia labourer’s diet in 1772 offers one point of comparison. In 1772, 57% of an “average” Philadelphia laborer’s supply of butcher’s meat came from beef, 27% from veal, 10% from lamb, and 5% from pork. The same per capita ratios in New York City in 1816 were 58% for beef, 12% for veal, 21% for lamb, and 8% for pork, while in 1818 they were 60, 12, 20, and 8% respectively. The data therefore suggest that whereas the ratios of fresh beef and pork in the red meat basket remained constant between 1772 and 1818, a notable decline occurred in the consumption of veal, which was offset by a comparable rise in the consumption of lamb.

However, direct consumption data based on two New York household accounts—those of Evert Bancker Jr.’s from 1787, and John Pintard’s accounts from 1811 and 1827—do not confirm these trends. In 1787, about 19% of the Bancker household’s meat budget was spent on veal, and about 25% on lamb and mutton. Pintard in 1811 spent about 31% of his meat expenditure on veal, and 10% on lamb, whereas in 1827, the same figures for his household were 25 and 18% respectively. It is, of course, problematic to compare three different households across four decades. Yet it is still noteworthy that the data do not corroborate a trend of declining veal and increasing lamb consumption over the period. If anything, they seem to point in the opposite direction. Similarly, archaeological studies of animal bones in Manhattan indicate an overall decline in the consumption of lamb from the early 18th to the mid-19th century. Of course, these diverging trends may simply reflect class differentials in food consumption patterns, after all compared to a Philadelphia labourer, the Banckers and the Pintards were well-off New York City families. Another possibility could be that the meat supply of these two cities differed in certain aspects. In short, the data are contradictory, which is hardly surprising given their sporadic nature. It makes sense at this point to simply assume constant conversion rates based on the 1816 market returns. Billy G. Smith, "The Material Lives of Laboring Philadelphians, 1750 to 1800" The William and Mary Quarterly 38, no. 2 (1981): 167-171; NYHS-MD: Evert Bancker, Jr., “Household Account Book of Evert Bancker, Jr., 1772-1776”; Evert Bancker, Jr., “List of Proprietors, Account and Survey Book, 1784-88;” John Pintard Papers, “Marketing Account Book, 1811-1824;” John Pintard Papers, “Marketing Account Book, 1826-1830”; John Pintard Papers, “Record of Household Expenses, 1826-1828;” Box 9, Folders 1-3; Nan A. Rothschild, New York City Neighborhoods: The 18th Century (Clinton Corners: Percheron Press, 2008), 146-149.
For converting animals into pounds of meat, I have again relied on Komlos’s slaughter weights. One problem is that over these two-and-a-half decades, slaughter weights may have slightly increased. Yet such changes must have remained small enough not to have a major impact on my estimates. If such a problem exists, it should produce slightly overestimated figures for the earlier years compared to the 1816 and 1818 market returns. For calculating the city’s population size in 1795, 1813 and 1818, I have relied on the nearest previous and subsequent census figures, and assumed a constant rate of population growth. Rosenwaike, *Population History of New York City*, 18.

By 1818, the volume of meat sales outside the market system most likely increased. In 1817, the City Council ended its previous practice of licensing case-by-case street stalls and meat shops, and pushed those who retailed outside the market system to the sparsely populated northern districts—north of First Street, east of the Bowery, and north of Thirteenth Street, west of Broadway. Some of these butchers relocated to the northern fringes of the city, where the collection of fees was more difficult. Others probably continued their business at the same location—informally. In either case, in 1818 the Market Clerks must have missed accounting for more animals than two years earlier. At the same time, the Council decided to replace Fly Market, the largest in the city, with the modern Fulton Market. Stall counts suggest that butchers started to abandon Fly Market as early as 1818. Given that Fly conducted the largest volume of trade in the city, its gradual demise must have resulted in additional informal sales, in turn, leaving more animals unaccounted for. This explanation is also supported by the fact that the decrease resulted less from lower sales of beef, than from declining sales of “small meats”—veal, and especially lamb and pork. Violations occurred more frequently in these categories.


See endnote 17 for an analysis of John Pintard’s meat expenditures in 1811, 1814 and 1817.


One should note that Parisian meat consumption appears unusually high by European standards. Even as systematic data for London are lacking, according to John Ramsay McCulloch’s calculations, in 1837, per capita meat consumption (exclusive of bacon, hams, salted provisions and poultry) reached 107 pounds. The London figure was about two-thirds that of early 19th century New York, albeit one should add that 1837 was the first year of a long recessionary cycle. Similarly, according to Ingeborg-Dorothee Brantz’s calculations, in the case of Berlin, the 1845 figure (including all red meats) was 104.7 pounds, while between 1854 and 1861, it stood at about 95.9 pounds, that is at much lower levels than in early 19th century New York. These comparisons are only for orientation. To situate New York City more firmly within a web of trans-Atlantic comparisons, better and broader data are needed, while differences in urban and rural diets also have to be accounted for. Simon Gabriel Hanson, *Argentine Meat and the British Market: Chapters in the History of the Argentine Meat Industry* (Stanford: Stanford University Press, 1938), 22-23, footnotes 12, 16; Brantz, "Slaughter in the City: The Establishment of Public Abattoirs in Paris and Berlin, 1780-1914", 295. See also: Peter J. Atkins, “A Tale of Two Cities: A Comparison of Food Supply in London and Paris in the 1850s” in *Food and the City in Europe since 1800*, ed Peter J. Atkins, Peter Lummel, and Derek J. Oddy (Ashgate Publishing Co., 2007), 34-36.
This claim is further corroborated by Smith’s estimate of 174.5 pounds of meat consumed by a Philadelphia laborer in 1772. It is, of course, problematic to compare a laborer’s diet to per capita meat consumption rates. After all, a physical laborer needed more than average amounts of protein, which he may not have been able to afford. Yet the fact that only a few decades later, New Yorkers ate nearly as much fresh meat per capita as was the meat allowance of an adult male Philadelphia laborer, suggests that overall meat consumption probably increased during the period. The other possibility is that New Yorkers already ate more meat in 1772 than Philadelphians. Unfortunately no data are available for before 1790 to illuminate these trends.


The maps trace the expansion, relative decline, and changing internal hierarchy of the city’s public market system from between 1792 until 1855 across twelve points in time. For each map, the size of the circles assigned to the individual markets corresponds to their relative volume of trade, while the color-coding represents the data used for the calculation, which is also noted on the upper left corner. Depending on the year and the availability of the data, I use four kinds of indicators for assessing the relative volume of annual market trade. For 1792, 1816, and 1818, I rely on market revenue data based on excise taxes. For a discussion of sources and calculations, see endnotes 14-16, 18, and 22-24. For between 1828 and 1855, I use annual market rents collected from the butchers, and annual market fees collected from all the other vendors. See endnote 61. Finally, in lack of a better indicator, for 1800, 1810, and 1822, I use the number of occupied butcher stalls as a proxy for market revenues. See endnote 44.


I combined De Voe’s books and manuscripts with both published and archival municipal records to determine the number of available and occupied butcher stalls for each year between 1784 until 1860. Sources give stall counts and/or butcher lists for only specific years. For the missing years, I made informed estimates based on De Voe’s histories of the individual markets and using the years for which there were data available. Overall, the following sources have been used to compile stall counts: De Voe, The Market Book: A History of the Public Markets of the City of New York; NYHS-MD: Thomas F. De Voe, “Ground Plans of the Public Markets in New York City, 1694-1866”; Thomas F. De Voe, “List of Butchers in the City with some Biographical Notes, 1656-1844”; Thomas F. De Voe, “New York City Markets Collection, ca. 1817 - ca. 1878”, Boxes 1 & 2; Common Council, Minutes of the Common Council of the City of New York, 1784-1831; Matteson and Common Council, Minutes of the Common Council of the City of New York, 1784-1831: Analytical Index; CCMD (NYC-MA): “Returns of all the Butchers in the Different Markets of the City”, Market Committee: 1818, Box 66, Folder 1535; CCFP (NYC-MA): “Returns of the Different Markets: Clinton Market, 1847; Tompkins Market, 1847; Monroe and Governeur Markets, 1848; Washington Market, 1855”; List of the Constables, Marshals, Butchers, Cartmen, and Porters, for the City and County of New-York, in the Mayorality of De Witt Clinton, esq. (Printed by H.C. Southwick, 1809).
One should add that in addition to market butchers, the Common Council also licensed on a case-by-case basis a few butchers to retail meat from street stalls in areas undersupplied by markets. The exact number of these butchers is unknown, but the incidental nature of the licensing procedure suggests that it remained very low. If those butchers were also included, the increase in the ratio of residents per stall would be even smaller.

Haines, "Health, Height, Nutrition, and Mortality: Evidence on The "Antebellum Puzzle" From Union Army Recruits in the Middle of the Nineteenth Century": table 3; Komlos, "The Height and Weight of West Point Cadets: Dietary Change in Antebellum America": 909, 913.

The Market Committee reports slaughtering counts for 1831, which could be used to compute consumption estimates for the subsequent years. However, this produces the unrealistically low figure of 57.8 pounds of beef per capita. Hence I decided to use only the 1836-1838 and 1842 data, which result in realistic per capita beef consumption rates. New York (N.Y.). Board of Aldermen, "Documents of the Board of Aldermen of the City of New-York" (New York: 1834-1868), Vol. 6: Doc. 31, 374-375; Vol. 9: Doc.46, 412.


Population figures for New York City are available at five year intervals. For the intermittent years, I estimated population size by assuming a constant rate of change between the two known observations. For sources, see endnote 42 and: Rosenwaike, Population History of New York City, 36.

For Boston, I used the same method of estimating population figures, relying on decadal data. Richard A. Meckel, "Immigration, Mortality, and Population Growth in Boston, 1840-1880" Journal of Interdisciplinary History 15, no. 3 (1985): 401. Figures for the number of beef cattle slaughtered in New York City and at Brighton Market were compiled from the following sources. Aldermen, "Documents of the Board of Aldermen of the City of New-York", Vol. 6: Doc. 31, 374-375; Vol. 9: Doc. 46, 412; Smith and Bridges, "The Brighton Market: Feeding Nineteenth-Century Boston": 20-21. Like earlier, I used the same dressed weight of 450 pounds per cattle.

For an account of the political and social turmoil, and the hardships of everyday life caused by the recession in New York City: Burrows and Wallace, Gotham: A History of New York City to 1898, 603-645.


Per capita production figures of hog, cattle and sheep in New York State—minus New York City—between 1825 and 1860 were as follows: 1.013 hog, 1.045 cattle and 2.414 sheep in 1825; 0.815 hog, 0.989 cattle and 2.235 sheep in 1835; 0.898 hog, 0.903 cattle and 2.419 sheep in 1840; 0.709 hog, 0.928 cattle and 2.885 sheep in 1845; 0.394 hog, 0.727 cattle and 1.338 sheep in 1850; 0.377 hog, 0.742 cattle and 1.134 sheep in 1855; 0.297 hog, 0.643 cattle and 0.854 sheep in 1860; 0.347 hog, 0.587 cattle, and 1.778 sheep in 1865; and 0.151 hog, 0.594 cattle, and 0.634 sheep in 1870. Haines, "Health, Height, Nutrition, and Mortality: Evidence on The "Antebellum Puzzle" From Union Army Recruits in the Middle of the Nineteenth Century": 5, table 3.

Based on production figures from the federal censuses, Komlos puts total per capita meat consumption rates at 213 pounds in 1839, 194 pounds in 1849, 181 pounds in 1859, 130 pounds in 1869, and 161 pounds in 1879. His figures for per capita beef consumption are 79 pounds in 1839, 72 pounds in 1849, 73 pounds in 1859, 56 pounds in 1869, and 64 pounds in 1879. Komlos, "The Height and Weight of West Point Cadets: Dietary Change in Antebellum America": 909, 913.

Unfortunately, there are no direct data concerning per capita meat consumption in New York City after 1842. One exception, cited widely by historians, is an estimate available from an 1851 New York Tribune article, which claimed that members of an average working-class household ate about 146 pounds of butcher’s meat per year. It is hard to compare this figure to the more systematic data from between 1795 and 1818. Yet compared to the 160.4

In addition, the historian Richard Stott estimates that members of a working-class family ate between 219 to 255.5 pounds of meat per year during the 1850s and 1860s. These figures refer to all meats, not only fresh butcher’s meat, and hence it is impossible to compare them to my own estimates for the earlier period. Besides, there is some concern about the accuracy of the data. His figures put per capita beef consumption rates between 152 and 187 pounds, which simply cannot be correct. As Stott himself admits, these figures far exceed any recorded levels of beef consumption in American history. Richard Briggs Stott, Workers in the Metropolis: Class, Ethnicity, and Youth in Antebellum New York City (Ithaca: Cornell University Press, 1990), 77.

57 The wholesale price of meat is given in the unit of a barrel: 200 pounds at the time. For Philadelphia, I use the relative prices of the average of mess and prime beef, whereas for New York and Boston, price quotations refer to mess beef. The Boston figures are actually quotations from Charleston. Bezanson, et al. did not report original prices, but converted those into relative prices, where the monthly averages of 1821-25 were used as the base period. Cole, on the other hand, reported the original prices for New York City and Boston. Since the Philadelphia wholesale prices are considered standard reference, and also to make prices more comparable across the cities, I converted the New York City and Boston price quotations into relative prices using the same base period of 1821-25. Anne Bezanson et al., Wholesale Prices in Philadelphia, 1784-1861 (Philadelphia: University of Pennsylvania Press, 1936), Vol. 1: 394; Vol 2: 9, 171; Arthur Harrison Cole and International Scientific Committee on Price History, Wholesale Commodity Prices in the United States, 1700-1861. Statistical Supplement: Actual Wholesale Prices of Various Commodities (Cambridge: Harvard University Press, 1938).


60 Komlos also underlines that the price of meat relative to industrial goods increased even more sharply (by around 22%) between the 1820s and 1850s. Urban consumers faced an additional burden, as the prices of farm goods increased more rapidly than those of urban products. In Philadelphia, for example, meat prices relative to industrial products were 23.5% higher in the 1830s, 2% higher in the 1840s, and 40.6% higher in the 1850s than during the base period of the 1820s. Komlos, "The Height and Weight of West Point Cadets: Dietary Change in Antebellum America": 915-917; Komlos, "Shrinking in a Growing Economy? The Mystery of Physical Stature during the Industrial Revolution": 786.

61 For computing market revenues and expenditures between 1821 and 1830, I relied on all relevant volumes of the Common Council proceedings. Between 1831 and 1858, data concerning market revenues are available on a yearly basis from the Annual Reports of the Comptroller. The reports of 1853 and 1858 tabulate market rents and fees for the entire period. Unfortunately, they do not provide information concerning premiums. For all missing or incomplete information, I referred back to the original annual reports for between 1830 and 1860. Common Council, Minutes of the Common Council of the City of New York, 1784-1831, Vol. 13: 451-458, 473-492; Vol. 14: 242-250; Vol. 15: 134-143; New York (N. Y.), Annual Report of the Comptroller, of the City of New York, of the Receipts and Expenditures of the Corporation, for the Year 1853 (New-York: 1854), 742; New York (N. Y.), Annual Report of the Comptroller of the City and County of New York, Exhibiting the Receipts and Expenditures of the City and County. Also, the Loans, Receipts and Reimbursements upon the Various Trust and Special Accounts for and during the Fiscal Year Ending December 31”, 1858 (New-York: 1854), 46-61.

62 For sources on population figures, see endnote 42. I decided to end the analysis of the market revenue data in 1849, because market fees in 1850 increased drastically from the previous year, suggesting that the city must have changed the amount of daily fees it collected from market vendors. As these rates are unknown, I was not able to convert the 1850 market fees into 1849 rates.

63 Rosenwaike, Population History of New York City, 37.
It is also true, that the much milder 1834 cholera epidemic only corresponded to stagnating market fees, while the more severe 1849 epidemic, which claimed the lives of 1.1% of the residents, resulted in a relatively small decrease of market fees. Yet by then, markets also played lesser role in provisioning residents. Ibid.

For a description of the sources used to calculate the number of butcher stalls, see endnote 44. For sources and methods of calculating population size annually, see endnote 42.

This trend is further substantiated by the growing difference between the number of available and occupied market stalls. From the late 1830s more and more butchers abandoned the markets, or did not apply for stalls that opened up for occupancy—a testimony not only to the fading importance of public markets, but also that the recession of 1837/43 contributed to declining meat sales.


For sources, see endnote 42.

For details about the maps, see endnote 42.


Ibid, 141-185.

Ibid., 38-111, 270-345.


Ibid., Vol. 6: Doc. 55, 571-572.

Ibid., Vol. 6: Doc. 55, 567-568.

Enforcement fell upon the Superintendent of Markets, the Alderman, Assistant Alderman, Street Inspector, and Health Warden of each ward. Ibid., Vol. 9: Doc. 31, 258-259.

They also added that abolishing the market laws is “calculated to subject the citizens to the frauds and imposition of the profligate and designing, without affording any adequate means of detection or exposure.” Ibid., Vol. 9: Doc.45, 395-396.

Ibid., Vol. 9: Doc. 34, 279-304.

Ibid., Vol. 9: Doc. 34, 303-304.


88 The fact that butchers managed to slow down deregulation for decades, and that subsequently they succeeded in blocking municipal efforts to build public abattoirs, is testimony to the high level of organization that characterized their trade. Even if young apprentices were known to be a rowdy crowd—affiliated with street gangs, nativism, and in general, with an excessive culture of masculinity—, undoubtedly, butchers represented one of the city’s last corporate trade. Tangires, Public Markets and Civic Culture in Nineteenth-Century America, 61-63, 64-68, 71-94; Wilentz, Chants Democratic: New York City & the Rise of the American Working Class, 1788-1850, 55, 262, 270, 315-316; Burrows and Wallace, Gotham: A History of New York City to 1898, 402, 632, 740, 1086; Paul A. Gilje, The Road to Mobocracy: Popular Disorder in New York City, 1763-1834 (Chapel Hill: University of North Carolina Press, 1987), 229, 231, 236, 243-245, 257; Stott, Workers in the Metropolis: Class, Ethnicity, and Youth in Antebellum New York City, 263-264.

89 The butcher-turned-historian and later Market Superintendent Thomas F. De Voe was undoubtedly an unusually erudite butcher. Still, De Voe’s The Market Book and The Market Assistant were testimonies not only of his mastery of an old tradition of craftsmanship, but also of the public purpose and collective identity of generations of butchers. The Market Book contains long biographies of New York’s more reputable butchers as if their public role competed with that of the city’s officeholders. When looking at De Voe’s original manuscripts, it is clear, that more than half of his work consisted of meticulously documenting the long heritage that inseparably tied the butchers to their city. The Market Assistant, describing each and every food item, was supposed to assist fellow residents about how to navigate the city’s landscape of marketing. Yet the attention De Voe gives to the butcher’s craft—the preparation and handling of fresh meat, the various kinds of cuts and their qualities—is truly remarkable. Every page of the book is evidence of a sophisticated artisan, who knew everything there was to know about the trade of retailing fresh meat. De Voe, The Market Book: A History of the Public Markets of the City of New York; Thomas F. De Voe, The Market Assistant, Containing a Brief Description of Every Article of Human Food Sold in the Public Markets of the Cities of New York, Boston, Philadelphia, and Brooklyn: Including the Various Domestic and Wild Animals, Poultry, Game, Fish, Vegetables, Fruits, &c., &c., with Many Curious Incidents and Anecdotes (Cambridge: Printed at the Riverside press for the author, 1867).

90 As myriad of petitions testify, some butchers found ways around the system. A butcher could manipulate the market for stalls by recommending a successor to the Council, or by exchanging his stall for another with the consent of another butcher and the Council, or by informally subleasing it. Still, such practices could only have marginal impact on a real estate market that was largely controlled by the municipality, and which created artificial barriers for butchers to relocate their businesses.

91 The data are summarized in the table below, showing the number of butchers who retailed meat out of the same marketplace between 1818/1828, 1828/1838 and 1818/1838.

<table>
<thead>
<tr>
<th></th>
<th>1818/28</th>
<th>1828/38</th>
<th>1818/38</th>
<th>1818/28</th>
<th>1828/38</th>
<th>1818/38</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catharine</td>
<td>15 (47)</td>
<td>15 (47)</td>
<td>7 (47)</td>
<td>32%</td>
<td>32%</td>
<td>15%</td>
</tr>
<tr>
<td>Centre</td>
<td>8 (14)</td>
<td>9 (20)</td>
<td>3 (14)</td>
<td>57%</td>
<td>45%</td>
<td>21%</td>
</tr>
<tr>
<td>Franklin</td>
<td>NA</td>
<td>4 (8)</td>
<td>NA</td>
<td>50%</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Fulton</td>
<td>NA</td>
<td>30 (60)</td>
<td>NA</td>
<td>50%</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Washington</td>
<td>20 (55)</td>
<td>22 (55)</td>
<td>8 (55)</td>
<td>36%</td>
<td>40%</td>
<td>15%</td>
</tr>
<tr>
<td>Clinton (1829/38)</td>
<td>NA</td>
<td>11 (24)</td>
<td>NA</td>
<td>46%</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Average</td>
<td></td>
<td></td>
<td></td>
<td>42%</td>
<td>44%</td>
<td>17%</td>
</tr>
</tbody>
</table>

The names of all butchers and their stalls listed in any of the sources available from the 1790s until the 1850s have been entered into a database. For the years of 1828 and 1838, De Voe’s manuscripts, while for 1818, the original City Council records provided the best information. De Voe, The Market Book: A History of the Public Markets of
The table below shows how many times butcher stalls changed occupancy between 1832/1836 in the respective public markets.

<table>
<thead>
<tr>
<th>Market</th>
<th>&quot;0&quot;</th>
<th>&quot;1&quot;</th>
<th>&quot;2&quot;</th>
<th>&quot;3&quot;</th>
<th>Stalls</th>
<th>Change</th>
<th>Family</th>
<th>Market</th>
<th>Ave. years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catharine</td>
<td>26 (55%)</td>
<td>12 (26%)</td>
<td>7 (15%)</td>
<td>2 (4%)</td>
<td>47</td>
<td>32</td>
<td>4</td>
<td>1</td>
<td>3.0</td>
</tr>
<tr>
<td>Centre</td>
<td>13 (54%)</td>
<td>10 (42%)</td>
<td>1 (4%)</td>
<td>0</td>
<td>24</td>
<td>12</td>
<td>1</td>
<td>0</td>
<td>3.3</td>
</tr>
<tr>
<td>Essex</td>
<td>10 (56%)</td>
<td>6 (33%)</td>
<td>0</td>
<td>2 (11%)</td>
<td>18</td>
<td>12</td>
<td>1</td>
<td>0</td>
<td>3.0</td>
</tr>
<tr>
<td>Franklin</td>
<td>6 (75%)</td>
<td>0</td>
<td>2 (25%)</td>
<td>0</td>
<td>8</td>
<td>4</td>
<td>0</td>
<td>1</td>
<td>3.3</td>
</tr>
<tr>
<td>Fulton</td>
<td>35 (58%)</td>
<td>18 (30%)</td>
<td>5 (8%)</td>
<td>2 (3%)</td>
<td>60</td>
<td>34</td>
<td>4</td>
<td>4</td>
<td>3.2</td>
</tr>
<tr>
<td>Grand</td>
<td>5 (50%)</td>
<td>0</td>
<td>2 (20%)</td>
<td>3 (30%)</td>
<td>10</td>
<td>13</td>
<td>0</td>
<td>3</td>
<td>2.2</td>
</tr>
<tr>
<td>Washington</td>
<td>32 (58%)</td>
<td>17 (31%)</td>
<td>4 (7%)</td>
<td>2 (4%)</td>
<td>55</td>
<td>31</td>
<td>3</td>
<td>1</td>
<td>3.2</td>
</tr>
<tr>
<td>Average</td>
<td>58%</td>
<td>23%</td>
<td>11%</td>
<td>7%</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>


Ibid., 354-355, 369.


The most scandalous case occurred with Reynolds & Company, which was granted a five years contract by the Council to remove animal waste. By the summer of 1853, the private interest of some city officials in the firm became public knowledge, and the City Comptroller refused to pay a bill for Reynolds. Hearings by the Public Health Committee exposed not only political corruption, but also the dreadful sanitary conditions of many slaughterhouses, the nuisances they caused to residents, and the disturbing practice of dumping the city’s animal waste into the rivers. As hearings dragged on for over a year, even this poor service came to a standstill. The nauseating sights and odors from hundreds of butcher shops and slaughterhouses prompted newspapers to intensify their campaign to force the noxious trades outside of the city. Still, the next decade saw minor improvements only, and only after the Civil War was slaughtering pushed outside of the city. Duffy, *A History of Public Health in New York City*, 380-384; Burrows and Wallace, *Gotham: A History of New York City to 1898*, 786-787; Edward K. Spann, *The New Metropolis: New York City, 1840-1857* (New York: Columbia University Press, 1981), 129-130.


103 Ibid., 1845: 181, 172-183; 1846: 397-402.


105 Interestingly, the most elaborate treatise on the subject came from a civic-minded citizen, Joseph L. Frame, who, in 1850, petitioned the Council on behalf of a large constituency of residents. His proposal, swiftly shelved by officials, included a more than twenty-page discussion on the public health benefits of abattoirs—addressing nuisances and inspection—, expenditure and revenue estimates, and sketches of construction plans. CCFP (NYC-MA): “Joseph L. Frame’s Proposal for Public Slaughter-houses”, March 29, 1850, Special Committee on Slaughter-houses: 1850. See also related documents in the same folder.


107 One year later, the Superintendent of Markets suggested the sale of the property, and the building of a new market at the nearby site of West-Washington Market, “now covered by all kinds of sheds, intercepted by filthy paths.” His proposal no longer referred to a splendid wholesale market, but even this modest plan did not materialize. City Inspector, "Annual Report", 1860: 22-24; 1861: 283, 283-298.

108 Ibid., 1860: 22.

109 Ibid., 1856: 208-209.

110 Diseased meat “is sold in our markets by the quantity, and is extensively retailed in basements throughout the city. On Saturday nights our avenues and minor streets are traversed with wagons and hand carts laden with it.” Ibid., 1855: 190-191; 1857: 195.


113 The hindquarters were considered the choice quarters, which were separated into smaller cuts to form sirloin or rump roasts. Roasts from the first nine ribs of the forequarters were also much valued. The other premium cut from the loin was the steak, which was served mostly in eating houses or broiled over open fires. As a smaller cut, it was accessible even to working-class residents on rare occasions. Most of New Yorkers, however, could not afford expensive roasts or steaks, but depended on tougher and bonier cuts eaten largely in stews or soups. These included the flank and the rounds from the hindquarters, and the brisket and plate from the forequarters, eaten mostly in stews, as they needed to be cooked longer in water. Bony meats such as the neck, shoulder and thigh were mainly served in soups, while beef livers and kidneys were eaten both in stews and soups. The cheapest cuts were the beef
shins, which, according to De Voe, were good for nothing but stock for soup, while beef brisket and plate were used chiefly for cured beef. A similar, although less elaborate hierarchy existed for the other butcher’s meats as well. For veal, the hindquarters, divided usually in the loin and the leg, were the choice pieces, commanding the highest prices, while the forequarters, containing the shoulder, neck, and breast were less popular, and were often used for stewing. Similarly, for mutton and lamb, the leg and loin were the choice pieces, and for pork, the loin was considered the best meat. Horowitz, *Putting Meat on the American Table: Taste, Technology, Transformation*, 22-24; De Voe, *The Market Assistant, Containing a Brief Description of Every Article of Human Food Sold in the Public Markets of the Cities of New York, Boston, Philadelphia, and Brooklyn: Including the Various Domestic and Wild Animals, Poultry, Game, Fish, Vegetables, Fruits, &c., &c., with Many Curious Incidents and Anecdotes*, 29-59, 65-73, 76-84.


117 Falling average butcher rents across markets from west to east did not reflect the distribution of Manhattan real estate values. Robert Margo’s study of the distribution of rental prices in Manhattan between 1830 and 1860 shows that while rents progressively declined moving northward from City Hall, they also fell more markedly in western neighborhoods than eastern ones. Robert A. Margo, "The Rental Price of Housing in New York City, 1830-1860" *The Journal of Economic History* 56, no. 3 (1996): 616.

118 As argued elsewhere, eastern markets faced greater competition from formal and informal private retailers. Residents in the city’s eastern wards, despite having access to public markets, were more likely to purchase their provisions at meat shops, groceries, or from street vendors than those living in the west. Baics, *Feeding Gotham: A Social History of Urban Provisioing, 1780-1860,* 161-185, especially 172-181.


120 One direct measure is also available: personal estate from 1842. Yet these data, compiled by Moses Beach, are based on tax assessments, and hence they substantially underestimate the amount of personal wealth. As Stott underlines, their value is comparative only. Still, using Beach’s data produces the exact same patterns of declining personal estate from west to east. Beach, *Wealth and Wealthy Citizens of New York City Comprising an Alphabetical Arrangement of Persons Estimated to Be Worth*; Pessen, "The Egalitarian Myth and the American Social Reality: Wealth, Mobility, and Equality in The "Era of the Common Man""; 993-995; Stott, *Workers in the Metropolis: Class, Ethnicity, and Youth in Antebellum New York City*, 200, endnote 8.

Even if the percentage of Irish-born was among the highest in wards 1 and 2, by the 1840s these southern areas had very small residential populations.


According to Ernst, as early as 1846, about half of New York’s butchers were immigrants, mostly of German but also of Irish and English origin. Robert Ernst, *Immigrant Life in New York City, 1825-1863* (New York: King’s Crown Press, 1949), 87, 214-217.


